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*Celebrating
New Farmers
and Gardeners*



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Photo by Alisha Laramee, Program Manager, NFNA



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<p>Georgia Rural Health Innovation Center</p>  The Georgia Rural Health Innovation Center logo features the text "GEORGIA Rural Health INNOVATION CENTER" in black, with a red leaf icon between "Rural" and "Health". Below this, it says "AT MERCER UNIVERSITY SCHOOL OF MEDICINE" in smaller black text.	<p>University of Hawai'i at Mānoa Office of Public Health Studies, Thompson School</p>  The logo for the University of Hawai'i at Mānoa Office of Public Health Studies features the text "UNIVERSITY OF HAWA'I AT MĀNOA" in small green letters, "OFFICE of PUBLIC HEALTH STUDIES" in larger green letters, and "THOMPSON SCHOOL" in large green letters, with "SOCIAL WORK & PUBLIC HEALTH" in smaller green letters below.
<p>Harrisdale Homestead (Atlantic, Iowa) Affiliated with the Wallace Foundation for Rural Research & Development</p>  The Harrisdale logo features the word "Harrisdale" in a large, black, serif font, centered within a light orange rectangular background.	<p>University of Houston Downtown</p>  The University of Houston Downtown logo features the letters "UHD" in large, bold, blue and red letters, followed by the text "University of Houston DOWNTOWN" in blue.

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<p>Kwantlen Polytechnic University Institute for Sustainable Food Systems</p>  <p>The logo for Kwantlen Polytechnic University (KPU) features a stylized red 'Y' shape to the left of the letters 'KPU' in a bold, sans-serif font. Below this, the full name 'KWANTLEN POLYTECHNIC UNIVERSITY' is written in a smaller, all-caps font.</p>	<p>University of the District of Columbia College of Agriculture, Urban Sustainability & Environmental Sciences</p>  <p>The logo for the University of the District of Columbia features a stylized red leaf to the left of the text 'UNIVERSITY OF THE DISTRICT OF COLUMBIA' in a serif font, with '1851' below it.</p>
<p>Lakehead University Centre for Sustainable Food Systems, Research and Engagement</p>  <p>The logo for the Sustainable Food Systems Lab is a circular emblem. It features a green mushroom in the center, surrounded by the words 'SUSTAINABLE FOOD' at the top and 'SYSTEMS LAB' at the bottom. The words 'RESEARCH', 'ENGAGE', and 'COLLABORATE' are also included around the perimeter.</p>	<p>University of Vermont Food Systems</p>  <p>The logo for The University of Vermont features a green square containing a white silhouette of a building with a steeple. Below the square, the text 'The University of Vermont' is written in a serif font.</p>
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<p>Middlebury College Food Studies Program</p>  <p>The logo for Middlebury College features a blue shield containing a white silhouette of a building with a steeple, a globe, and an open book. The year '1800' is written at the bottom of the shield.</p>	<p>W.K. Kellogg Foundation</p>  <p>The logo for the W.K. Kellogg Foundation features an orange square containing the letters 'wk' and 'KF' in white. To the right of the square, the text 'W.K. KELLOGG FOUNDATION' is written in a bold, sans-serif font.</p>

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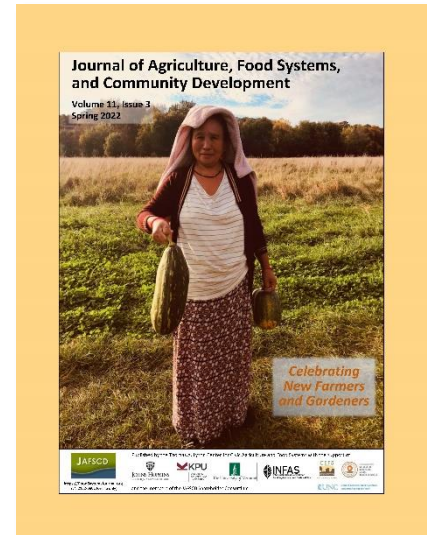
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IN THIS ISSUE
DUNCAN HILCHEY

Celebrating new farmers and gardeners



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In this issue, we celebrate the extraordinary contributions that new farmers and gardeners make to their host communities. Immigrant farmers and gardeners, military vet farmers, young BIPOC farmers ... all are increasingly joining the ranks of our food producers. While not enough to replace the loss of traditional farmers, USDA funding to support NGOs and CBOs that are providing land access, technical assistance, and farm incubation services appears to be fostering a new generation of farm and garden practitioners who are putting their shoulders to the wheel of food justice and food sovereignty in the U.S.

On our cover is Dhan Maya Subba, a participant in the New Farms for New Americans’ agriculture and education program for refugees (photo by Alisha Laramee, Program Manager, NFNA). Subba is one of nearly 100 families originally from homes in Asia and Africa who participate in the program to grow food to feed their families. NFNA, a program of the Association of Africans Living in Vermont, helps families who have been resettled in northern New England to access land, continue their agricultural traditions, and grow culturally significant crops. More details about NFNA can be gleaned from *Nepali Bhutanese refugee gardeners and their seed systems: Placemaking and foodways in Vermont* by Junru Guo, Daniel Tobin, and Teresa Mares (all at the University of Vermont) in this issue.

In this open-call issue of JAFSCD, we offer a wide range of peer-reviewed papers, including a fresh crop

On our cover: Dhan Maya Subba is a participant in the New Farms for New Americans’ agriculture and education program for refugees. Subba is one of nearly 100 families from throughout Asia and Africa who participate in the program to grow food to feed their families. NFNA, a program of the Association of Africans Living in Vermont, helps families who have been resettled in northern New England to access land, continue their agricultural traditions, and grow culturally significant crops. See [Nepali Bhutanese refugee gardeners and their seed systems: Placemaking and foodways in Vermont](#) by Junru Guo, Daniel Tobin, and Teresa Mares (all at the University of Vermont) in this issue.

Photo by Alisha Laramee, Program Manager, NFNA

of articles on COVID-19 and the food system and a number of papers touching on land access, agricultural labor, value chains, and food security.

In his ECONOMIC PAMPHLETEER column, entitled *Public policy for agricultural technology*, **John Ikerd** argues that “there is no lack of policy proposals to restore the damage done by industrial agriculture—only a lack of political will.” Restoring the damage requires implementing public policies that can formally recognize and eliminate bad technologies that are likely to have the opposite intended consequences—fewer farmers, soil loss, water loss, and polluted watersheds.

Next are three commentaries, including a JAFSCD shareholder commentary by **Laurel Bellante, Megan A. Carney, and Gigi Owen** entitled *Leveraging university resources to build awareness, support regional food policy, and disrupt dominant narratives guiding food-based development: Examples from University of Arizona’s Center for Regional Food Studies*. CRFS’s recent initiatives include its Food Systems Research Lab—fostering town-gown collaboration on local food policy, and its Future of Food and Social Justice Project—focusing on storytelling, especially by those voices less heard in the food system, such as Indigenous stakeholders.

This is followed by **Adam Pine’s** commentary entitled *Food system activism and the housing crisis* in which he explores the relationship between affordable housing and food insecurity and the need for collaboration among scholars and activists in both fields to address overlapping concerns.

Finally, **Melari Shisha Nongrum** and **Bethamehi Joy Syiem** provide a fresh look at “shifting agriculture” (clearing land to farm it for a brief period, then letting it revert) in their commentary *How traditional agriculture contributes to the global narrative for sustainability: A case from a community in northeast India*.

We continue to receive pandemic-related papers, usually in specific geographic contexts. In *Rising food insecurity and the impacts of the COVID-19 pandemic on emergency food assistance in Michigan*, **Dorceta E. Taylor, Te’Yah Wright, Ian Ortiz, Alison Surdoval, Ember D. McCoy, and Sorroco M. Daupan** explored how the race/ethnicity of program directors in Michigan during the pandemic may relate to program activities, the pandemic’s impacts, and responses to the pandemic.

Beyond procurement: Anchor institutions and adaptations for resilience by **Naomi Cunningham, David Conner, Claire Whitehouse, Henry Blair, and Jessica Krueger** explores how community-based institutions in New England, such as schools, universities, and hospitals, adjusted their operations to accommodate food needs of local residents during the pandemic. Anchor institutions, therefore, play a key role in resilience and food security during periods of crisis.

Marissa McElrone, Jennifer Russomanno, and Kathryn Wroth then explore the stressors the pandemic brought to bear on farmers in Tennessee in *A pilot study assessing the impacts of COVID-19 on Tennessee farmer social needs and pandemic-related anxiety*.

In their research brief, *COVID-19, a changing food-security landscape, and food movements: Findings from a literature scan in Canada*, **Kristen Lowitt, Joyce Slater, Zoe Davidson, and Food Matters Manitoba** find that the pandemic fostered critical relationships among emergency food distribution actors, other civil society groups, and the government that heretofore had not existed.

Next, in *Adaptive capacity in emergency food distribution: Pandemic pivots and possibilities for resilient communities in Colorado*, **Heide K. Bruckner** and **Sophie Dasaro** (both first authors) conclude that the degree to which emergency food distribution programs could maintain effectiveness during COVID-19 was directly related to their deep roots in the community, their ability to forge partnerships, and their existing organizational structures that facilitated appropriate and time-sensitive decision-making.

Megan Mucioki, Elizabeth Hoover, Jennifer Sowerwine, the Intertribal Agriculture Council, Keir Johnson-Reyes, Latashia Redhouse, and Dan Cornelius then present the results of surveys of Indigenous producers and communities to understand the disruption of the pandemic and find some promising food

sovereignty resilience in *Native American agriculture and food systems: Challenges and opportunities presented by the COVID-19 pandemic*.

And in *More of the same? Migrant agricultural workers' health, safety, and legal rights in the COVID-19 context*, **C. Susana Caxaj**, **Amy Cohen**, and **Carlos Colindres** evaluate the status of primarily Mexican farmworkers in British Columbia and find that, despite increased programs and services, key foundational issues of housing and human rights violations continue to plague workers.

In *Under the shadow of structural violence: Work and family dynamics for Latina farmworkers in southwestern Idaho*, **Rebecca L. Som Castellano**, **Lisa Meierotto**, and **Cynthia L. Curl** cast the spotlight on Latina farmworkers' struggle to be the cornerstones of their families while also toiling in the field. Programs to support farmworkers such as HeadStart are critical but need to expand their hours and age ranges to maximize their impact in rural areas.

Next, **Nadine Budd Nugent**, **Ronit A. Ridberg**, **Hollyanne Fricke**, **Carmen Byker Shanks**, **Amber G. Jones Chung**, **Sonya Shin**, **Amy L. Yaroch**, **Sarah A. Stotz**, **Melissa Akers**, **Roger Lowe**, **Carmen George**, **Kymie Thomas**, and **Hilary K. Seligman** provide fine-grained details of cutting-edge programming in an Alaskan and an Arizona Indigenous community in *Food sovereignty, health, and produce prescription programs: A case study in two rural tribal communities*.

As related to our cover story, **Junru Guo**, **Daniel Tobin**, and **Teresa Mares** explore if and how access to seeds and seed systems enable refugee gardeners to grow essential crops—which might be otherwise difficult to obtain—to produce foods reminiscent of their homelands in *Nepali Bhutanese refugee gardeners and their seed systems: Placemaking and foodways in Vermont*.

In *What do local food consumers want? Lessons from ten years at a local foods market* by **Matthew J. Mariola**, **Adam Schwieterman**, and **Gillian Desonier-Lewis**, the authors use historical point-of-sale data from a food co-op to identify gaps in local food provision. They conclude that a successful market needs both larger producers and small niche producers to provide an affordable diversity of products to the market.


Mckenzie Carvalho, **Amy Hagerman**, **Phil Kenkel**, and **David Shideler** find that distance to the store and rurality are associated with reduced SNAP usage in their paper *Differences in Supplemental Nutrition Assistance (SNAP) Program participation among Oklahoma counties*.

In *"The highest and best use of land in the city": Valuing urban agriculture in Philadelphia and Chicago*, **Domenic Vitiello** traces the evolution of urban agriculture practice, support, and policy in Philadelphia and Chicago since the 1990s (and earlier) and concludes that to have a meaningful impact, food production in cities needs to become a permanent fixture rather than a transitional use of urban land, as is currently practiced.

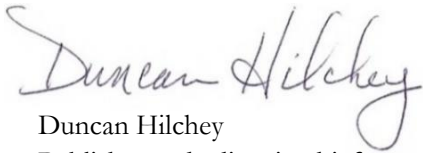
In this issue's final peer-reviewed paper, *Sustainability outcomes of the United States food system: A systematic review*, **Carissa B. Knox** and **Shelie A. Miller** conducted a systematic literature review to inventory common sustainability outcomes of the U.S. food system, and suggest a need for more collaboration across disciplines in developing metrics and measuring impacts.

We wrap up this issue with three book reviews: **Jennifer R. Shutek** reviews *Feeding Istanbul: The Political Economy of Urban Provisioning*, by Candan Turkkan. **Megan Marshall** reviews *A Recipe for Gentrification*, edited by Alison Hope Alkon, Yuki Kato, and Joshua Sbicca. And finally, **Matthew Hoffman** reviews *Building Community Food Webs*, by former JAFSCD columnist Ken Meter. (Matthew is one JAFSCD's volunteer book review editors, and we appreciate his work in both coordinating the process and guiding book reviewers so much!)

Altogether, this issue of JAFSCD points to a need for more holistic approaches to building resilient food systems. Stating this need almost sounds cliché after a decade of JAFSCD publishing transdisciplinary and “transprofessional” research. But to those of us in the publishing realm, it is crystal clear: while we need to

foster more scholarly applied research across disciplines (such as social sciences and production sciences), we simultaneously need scholars to increase their collaboration with the staff of NGOs, CBOs, and stakeholders. Those in the trenches have valuable experience and local knowledge, without which food system research can, unfortunately, remain academic. We look to our own JAFSCD Shareholder Consortium and JAFSCD's sister organization, the North American Food Systems Network (NAFSN),¹ for input on how JAFSCD can help provide a bridge for these equally important researchers and practitioners at the forefront of the food movement. 

Peace, health, and happiness to all,



Duncan Hilchey

Publisher and editor in chief

¹ Learn more about NAFSN at <https://foodsystemsnetwork.org>



THE ECONOMIC PAMPHLETEER
JOHN IKERD

Public policy for agricultural technology

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In my previous column on technology, I reasoned that “good technologies” (1) should not force people to adopt them but be matters of choice, (2) should reduce the drudgery of work but not the thinking, and (3) should not separate thinking from working (Ikerd, 2022). I concluded that industrial agricultural technologies violate all of these criteria because they are designed to maximize productivity and economic efficiency rather than economic sustainability. I concluded: “The technological challenges of the future will be to develop new mechanical, biological, and digital

technologies that empower, rather than oppress, the people who choose to use them” (Ikerd, 2022, p. 7).

Regardless of the criteria, many technologies of the future will be developed by private-sector corporations and thus will be designed to maximize economic efficiency and productivity. As a result, governments must accept the responsibilities for preventing, restricting, or mitigating the impacts of technologies that threaten the well-being of society over the long run.

The *precautionary principle* “establishes that it is

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*Why an **Economic Pamphleteer**? In his historic pamphlet Common Sense, written in 1775–1776, Thomas Paine wrote of the necessity of people to form governments to moderate their individual self-interest. In our government today, the pursuit of economic self-interest reigns supreme. Rural America has been recolonized, economically, by corporate industrial agriculture. I hope my “pamphlets” will help awaken Americans to a new revolution—to create a sustainable agri-food economy, revitalize rural communities, and reclaim our democracy. The collected Economic Pamphleteer columns (2010–2017) are at <https://bit.ly/ikerd-collection>*

better to avoid or mitigate an action or policy that has the plausible potential, based on scientific analysis, to result in major or irreversible negative consequences to the environment or public even if the consequences of that activity are not conclusively known, with the burden of proof that it is not harmful falling on those proposing the action” (New World Encyclopedia, n.d., para. 1). The precautionary principle is widely used by governments internationally, particularly in addressing environmental and public health risks. For example, “Article 174 (2) of the European Community Treaty provides that all Community policy on the environment shall be based on the precautionary principle” (Ecologic Institute, n.d., para. 2). The concept has faced strong opposition from industry. Its use in the U.S. is largely limited to governmental approval of new pharmaceuticals and medical procedures rather than technologies that threaten the environment or public health. Even in these cases, the government generally relies on those seeking approval to provide evidence of the safety and effectiveness of their drug or procedure.

Advocates of agricultural sustainability have long argued that the precautionary principle should be applied to agricultural technologies. However, the burden of proof that a new agricultural technology has been or will be harmful has fallen on those who are defending the interests of society rather than those who stand to benefit economically. For example, the pesticide industry is required only to provide evidence that a new pesticide “will not generally cause unreasonable adverse effects on the environment,” which includes “(1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits ... or (2) a human dietary risk from residues ... inconsistent with the standard under ... the Federal Food, Drug, and Cosmetic Act” (U.S. Environmental Protection Agency, n.d., para. 1–2).

If the economic benefits are deemed to outweigh the social and environmental costs, new technologies are generally approved. The only

exception is for residues in food products that fail to meet FFDCA standards. Since the social and environmental costs of a technology are difficult to quantify and typically accrue over extended periods of time, the immediate promise of corporate profits generally prevails over the long-run interests of society. Pesticides, for example, have commonly been significantly restricted or prohibited only after extended use has proven, beyond a reasonable doubt, that they pose unacceptable threats to the environment or public health. The negative impacts of new technologies on society, particularly on farmers and others in rural communities, are routinely ignored or accepted as the unavoidable costs of economic progress.

The immediate promise of corporate profits generally prevails over the long-run interests of society.

With a barrage of increasingly sophisticated chemical, biological, and digital technologies on the horizon due to an emphasis on the “sustainable intensification” of agricultural production, the sustainability of human life on earth may

depend on public policies based on the precautionary principle rather than an economic cost-benefit analysis. Eventually, environmental and public health regulations for industrial agriculture must be at least as restrictive as for other industries that pose similar risks to society. Even if effective regulations are imposed on industrial agriculture, society must be prepared to make significant investments in repairing the ecological and social damage caused by past technological mistakes.

Regenerative farming is a currently popular alternative to industrial agriculture that focuses on restoring and regenerating the productivity of resources that have been damaged or depleted by industrial agriculture. Terra Genesis International defines regenerative agriculture as “a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services. . . . Regenerative Agriculture aims to reverse global climate change. At the same time, it offers increased yields, resilience to climate instability, and higher health and vitality for farming communities” (n.d., p. 2). Numerous proposals have been developed to turn


the basic principles of regenerative farming into workable, effective farm and food policies. Among these is *Regenerative Farming and the Green New Deal* (Feldman et al., 2020). There is no lack of policy proposals to restore the damage done by industrial agriculture—only a lack of political will.

Among the most important public policy challenges related to technology will be redirecting publicly funded research and education. The USDA and the land-grant university system, in particular, are widely recognized for their contributions to the development and transfer of agricultural technologies. The basic problem is that their research and extension programs have been dominated by the development and dissemination of *industrial* agricultural technologies. Token research and education programs supporting organic and sustainable agriculture have been little more than a means of assuaging growing public concerns about industrial agriculture. Their priorities have been based on the ill-fated assumption that increasing the productivity and economic efficiency of agriculture would serve the greater good of society. The negative environmental,

There is no lack of policy proposals to restore the damage done by industrial agriculture—only a lack of political will.

societal, and public health consequences of industrial agriculture, which are now undeniable, were unknown, underappreciated, or ignored.

The corporate agribusiness sector will continue developing technologies designed to maximize agricultural productivity under the guise of addressing climate change and other environmental issues while continuing to maximize its profits. These technologies will continue to damage and deplete the resources necessary to sustain agricultural productivity, unless they are effectively vetted, restrained, and mitigated by government regulations. Public funds for research and education should not continue to be

used to develop and promote technologies that have negative environmental and social consequences. The USDA and land-grant universities must shoulder much of the responsibility for developing “new mechanical, biological, and digital technologies that empower, rather than oppress, the people who choose to use them” (Ikerd, 2022, p. 7). The future of food and farming depends on public policies that distinguish between good and bad technologies. 

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JAFSCD SHAREHOLDER COMMENTARY



Leveraging university resources to build awareness, support regional food policy, and disrupt dominant narratives guiding food-based development: Examples from the University of Arizona's Center for Regional Food Studies

Laurel Bellante,^a Megan A. Carney,^{b*} and Gigi Owen^c
University of Arizona

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Keywords

University-Community Partnerships, Regional Food Systems, Food Policy Councils, Counter-Narratives, Archival Activism

Food projects have become an increasingly popular engine for economic development and branding efforts to promote “creative cities” in

the neoliberal context (Joassart-Marcelli & Bosco, 2017). However, proponents of food-based development often overlook the uneven impacts of such projects and neglect underlying structural, social, and environmental issues. University researchers can play a key role in raising awareness about these issues, inform food policy needs, and create university-community partnerships that can disrupt dominant narratives and support local initiatives that build capacity, equity, and resilience in regional food systems. Located in Tucson, Arizona—a UNESCO City of Gastronomy—researchers at the University of Arizona (UA)'s Center for Regional Food Studies (CRFS), in collaboration with the Climate Assessment for the Southwest (CLIMAS), endeavor to accomplish these urgent tasks through several collaborative efforts described here.

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***The UA Food Systems Research Lab:
Mobilizing research and university-community
partnerships to inform local food policy***

Research conducted by CRFS and CLIMAS has demonstrated that the regional food system in southern Arizona faces several critical challenges (Owen et al., 2021). Social struggles in our food system include inequities of power and a lack of diverse representation in local food policy and decision-making, widespread food insecurity and limited access to local foods, the absence of a living wage and just livelihoods for workers throughout the food system, an aging agricultural workforce, inequities between urban and rural populations, and few resources for new and beginning farmers. Environmental struggles include a lack of access to affordable land and water and severe concerns related to the increased incidence of drought, heat extremes, shifts in seasonal temperatures, and pest and weed problems. Our research over the past several years has indicated a need for systemwide investment and planning to support food system growth and address structural inequalities (Kinkaid et al., 2021; Owen et al., 2021; see also Carney & Krause, 2019; Carney et al., 2020).

In 2021, researchers from CRFS and CLIMAS established the Food Systems Research Lab to mobilize university resources, research capacity, and university-community partnerships to support local efforts to address these systemic challenges. In 2015, Tucson was named a UNESCO City of Gastronomy. Since then, this designation has expanded interest in the southern Arizona food system and accelerated the use of food-based development as an economic engine. However, food-based development, while promising in some regards, is often dominated by white voices and neoliberal strategies focused on growing food entrepreneurship in metro Tucson. If we take seriously the need to build a more just and sustainable food system in southern Arizona, it is imperative that we research ongoing food-based development efforts, evaluate who is served and who is excluded, and amplify a greater diversity of perspectives in the process. Across Arizona, many individuals, organizations, and businesses are actively working to address the social and environmental challenges evident in our food system.

Through our experiences as community activists and nonprofit board members, our Lab members are well aware of how these endeavors can be greatly strengthened by research support, training, and networking with university partners. Hence, our lab aims to provide the research and insights needed to support these efforts in Pima County through a focus on community-informed research and collaboration with diverse regional partners.

One of the flagship efforts of the Food Systems Research Lab is to inform and help build the capacity of our local food policy council, the Pima County Food Alliance (PCFA). Although PCFA has led several important efforts to advance food policies in Pima County since its formation in 2011, its status as an all-volunteer organization—unfortunately, a common situation among food policy councils—has continually constrained the council's efforts and diversity of participants. Through a formal collaboration with PCFA, our Lab is committed to providing the research support, assessment, and community-based outreach and training to strengthen PCFA's efforts. With funding from the Community Food Bank of Southern Arizona, we have initiated a process to restructure the food council, diversify participation in it through five paid community liaison positions, and increase its organizational capacity by employing a part-time program coordinator and policy analyst. In the coming years, our research lab will support PCFA activities by compiling a food assessment report for Pima County, a best practices guide for food policy councils, and a collaborative action plan for the council.


The Future of Food and Social Justice Project

From 2022 to 2023, CRFS is curating a multimedia, public storytelling project to explore visions for a more equitable, as well as socially and racially just, food system in the southern Arizona borderlands region. While Tucson's designation as a UNESCO City of Gastronomy has bolstered food-based tourism and high-end cuisine in metro Tucson, the very people, voices, and histories upon which this designation was initially justified—namely, the over 4,000 years of agricultural and culinary activities of Native, Hispanic, and immigrant populations in the borderlands—are all too often excluded. The

“Future of Food and Social Justice” (FFSJ) storytelling project intends to amplify the voices and stories that have been overlooked in food-based development efforts while also centering a *racialized right to food* (Pine & de Souza, in press). A racialized right-to-food approach foregrounds a racial equity lens in asserting that existing food inequities (i.e., widespread food insecurity and hunger) stem from the racialized logics of white supremacy and settler colonialism. By “recognizing the voices, stories, and ‘survival’ of communities of color” (Pine & de Souza, in press, p. 14; see also Vizenor, 1994), our overall objective is to challenge simplistic, exclusive narratives that have tended to prioritize neoliberal visions of development and to ignore struggles for the right to food. FFSJ will uphold and center alternative visions for how a racialized right to food can and should be integrated into community planning, policy priorities, and collaborative efforts.

The stories shared and collected for this project will be published first online through the CRFS blog as part of a special series, followed by print and audio formats (such as a series of episodes on

Nutrire CoLab, a podcast coproduced by CRFS), and then deliberately shared back with communities by the authors themselves, with technical support from CRFS. The storytelling project will also be integrated with our Right to Food + Right to Farm series of teach-ins (workshops, skill-sharing, and community conversations) during the 2022–2023 academic year.

In conclusion, the number of social and environmental problems confronting our food systems presents an urgent need to leverage university resources and research acumen to help address these issues. We anticipate that the several collaborative efforts underway at the Center for Regional Food Studies at the University of Arizona will contribute to documenting the needs and vulnerabilities that exist across different nodes of our food system, highlight diverse perspectives and voices, increase community capacity to effect change, and produce reports and other outputs that can be used to raise awareness and inform positive food systems change for our region. 

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JAFSCD COMMENTARY

Food system activism and the housing crisis

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Abstract

The affordable housing crisis in the United States is leaving millions of Americans homeless or spending over one-third of their income on rent, a condition housing scholars refer to as ‘shelter poverty.’ This problem has clear linkages to the food system in terms of the cost and condition of food workers’ housing, the availability of food in low-income neighborhoods, the relationship between food and housing policy, and how much money households have available to provision themselves after paying rent. This commentary explores four aspects of the relationship between the U.S. food and housing systems: the contradiction between abundance and scarcity; the role of racism and coloniality in creating these systems; the role of the government and public policy in maintaining and supporting these systems; and how stigma affixes itself to both the

hungry and the shelter-poor. Incorporating housing as part of food system work can strengthen both ongoing movements and unite scholars and activists in exploring the on-the-ground living experiences of people across the country.

Keywords

Housing Affordability Crisis, Food System Activism, Unhoused, Housing Insecurity, Food Insecurity

Introduction

Both food pantries and homeless shelters are so commonplace across the U.S. that they are accepted as an unremarkable part of the landscape. However, the ubiquity of these institutions is evidence of the enormous problems that exist in both our food system and our housing system. Both are systems that are (1) highly capitalized but produce enormous inequalities; (2) deeply interconnected with contemporary and historical racism and coloniality; (3) places where government policy contributes to the unequal status quo; and (4) places where

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stigma is reproduced. Given the interconnections between food and housing, it is surprising that efforts to address these pressing social problems are often disconnected, with activists in each sphere using different strategies, alliances, and discourses to push for change. This commentary explores the connections between the U.S. housing affordability crisis and the food systems and asks if greater coordination between these two struggles—and the scholars who analyze them—could create better outcomes for all.

The housing affordability crisis in the U.S. refers to the nationwide lack of affordable housing, which results in 580,000 unhoused people each night and an astounding 62% of working-age renter households—19.2 million households—paying over one-third of their income in rent (Airgood-Obrycki et al., 2022), a condition defined as ‘shelter poverty’ (Stone, 2004). For low-income renters, these numbers skyrocket, with 70% of all extremely low-income households paying more than 50% of their income in rent (Aurand et al., 2021). Shelter-poor families often cannot afford other household necessities such as food, daycare, or healthcare because of the high cost of housing. The lack of affordable housing nationwide forces poor families to compete for the small number of affordable units available and to cut costs in other parts of their family budget in order to make ends meet (Airgood-Obrycki et al., 2022; Desmond, 2016). This situation has clear impacts on the food system: farm, restaurant, and grocery store workers need safe, affordable housing, and both unhoused and shelter-poor families experience high rates of food insecurity (Sprake et al., 2013). Further, neighborhoods defined by the USDA as food deserts are also areas with higher rates of affordable rental units (Pine & Bennett, 2014). Addressing these interconnections demands action from many institutions that shape community life, such as federal and local government and nonprofit organizations.

In the following sections I explore four important points of intersection between the food system and the housing system.

Abundance and Scarcity

The U.S. housing market is a completely commodified system, with its US\$33.6 trillion dollar value

(Gerrity, 2020) benefiting those with capital as opposed to those in need of a place to live (Marcuse & Madden, 2016). Thus when the housing market ‘improves,’ this means its market capitalization rises and that the wealth held by landlords and property owners has gone up, not that there is an increase in the amount of affordable housing available. However, this high level of investment has not resulted in adequate housing for all, since an estimated 6.8 million more affordable housing units are needed to eliminate shelter poverty (National Low Income Housing Coalition, n.d.). Similarly, our multitrillion-dollar food system creates large amounts of food, both for U.S. consumption and export, but does not forestall hunger for those unable to purchase food for their families; instead low-cost food contributes to health problems such as diabetes and obesity (Institute of Medicine & National Research Council, 2015; Patel, 2014). Increased production results in economic gains for food producers and new export markets and uses for food rather than an increased ability to address the needs of the hungry. As scholars of hunger have noted, our reliance on the overabundance of our food system to feed low-income people via the charitable sector is an unworkable and unjust system (de Souza, 2019; Fisher, 2018). In a similar way that overproduction of ‘surplus’ food is used in our massive foodbank system, our ‘trickle-down’ housing market provides older, low-quality homes for low-income renters (Lohnes, 2021; Rodríguez-Pose & Storper, 2020). In each system, the abundance of commodity production does not produce affordable housing or food security for the poor.

The State Is an Important Yet Contested Site of Activism

The federal government provides generous incentives for the production of market-rate housing. For example, the mortgage interest deduction costs the federal government US\$30 billion in 2020, providing a generous benefit to these homeowners (Keightley, 2020). Similarly, cities use single-family and exclusionary zoning to prevent the development of affordable housing and encourage market-rate housing (Einstein, 2021). This creates a housing market subsidized by the

federal government that is responsive to the needs of high income homeowners as opposed to the needs of renters and those experiencing shelter poverty. Housing activists are pushing against federal and local policy that prevents affordable housing development. Similarly, the USDA provides millions of dollars in subsidies to support industrial food production (Carolan, 2018) and also supports a set of anti-hunger programs such as the Supplemental Nutritional Access Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) to provision—albeit poorly—the millions of Americans who experience food insecurity each year. In both cases, housing and food activists are struggling against a state whose power shapes both the terrain of activism and the types of strategies proposed.

Hunger and Housing Are Deeply Racialized Phenomena

The housing system is built on white supremacy and continually reinforces coloniality and racialized benefits (Pine & de Souza, in press). Redlining, which prohibited mortgage lending to BIPOC (Black, Indigenous, and People of Color) neighborhoods and was legal from the 1930s until the passage of the Fair Housing Act of 1968, combined with racial covenants to produce a city that marginalized BIPOC residents and subsidized white residents (Goetz et al., 2020). These policies, combined with other actions such as guiding highway investments into BIPOC neighborhoods and underfunding public parks, decreased the quantity and quality of housing stock available to BIPOC communities. The long-term effect was the creation of a city that used the tools of planning and zoning to limit the housing option of BIPOC residents (Brand & Miller, 2020). BIPOC communities have substantially higher rates of shelter poverty than white households: a remarkable 20% of Black households, 18% of American Indian households, 14% of Latino households, and 10% of Asian households are extremely low-income renters, while only 6% of white households fit into this category. And this shelter poverty reinforces the lack of access to resources such as education, healthy food, and employment that are often

attached to prosperous neighborhoods and municipalities (Lipsitz, 2011). Colonial land expropriation is directly linked to higher rates of unhoused Indigenous communities, as generations of racist decision-making now shapes urban space (Dorries & Harjo, 2020). Similarly, the national food system does not benefit everyone equally, because it is itself a tool of racism operating through a variety of structures that do not distribute the benefits of our food system equally (Pine & de Souza, in press). Structural racism refers to public policies that appear racially neutral, but have clearly racially disparate impacts when they are put into place (Bonilla-Silva, 2001). We can see this through higher rates of food insecurity for BIPOC households, as well as the lack of aid from the federal government to BIPOC agricultural workers (White, 2021). The close relationship between racism and both housing and the food system illustrate the need for racially cognizant activism around these conjoined issues.

Stigma Is Currently Built into Affordable Housing and the Food System

Poor access to shelter and food insecurity are conditions that affect the material ability of people to take care of themselves and their families and are imbued with stigma and shame. Although less than 1% of U.S. housing stock is federally financed affordable housing, it is stigmatized as “the projects,” as are other areas of affordable housing, such as trailer parks and core urban areas. Location is used as a proxy for class, education, and social standing, which creates a situation where the act of survival comes with a label that defines the recipient as less than a full citizen (Vassenden & Lie, 2013). Likewise, food sources for people experiencing low incomes, such as food pantries and SNAP benefits, are stigmatized, as volunteers look down on food aid recipients, and food-shelf users are forced to wait in dirty and disheveled spaces for enough food for the week (de Souza, 2019; Poppendieck, 1999). Given the importance of housing and food to identity, these systems must be designed in ways that promote human dignity and empowerment, as opposed to simply bread and temporary shelter.

Conclusion

The affordable housing crisis is a national emergency that affects many aspects of our food system. How people are housed has a direct impact on how they access food (Shabazz, 2017). As Maggie Dickinson (2020) writes about the food-

shelf clients she studied in Brooklyn. “their struggles for food were intimately linked with their struggles for housing” (p. 22). By addressing these interconnected struggles, we can better understand how to house and shelter our most vulnerable citizens.

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JAFSCD COMMENTARY

How traditional agriculture contributes to the global narrative for sustainability: A case from a community in northeast India

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Abstract

Among food practices that foster climate resilience, traditional agricultural practices of Indigenous communities have been recognized and noted in recent times. These forms of agriculture include shifting cultivation and its adaptations across communities in the tropics. However, the policy narrative around shifting cultivation is rooted in its misunderstanding, as it was once seen as primitive and

backward. New research and a reinterpretation of existing research present challenges to long-held policies that have discouraged and deterred the practice of shifting cultivation. With the onset of this new narrative is a call to action that seeks a rethinking by policymakers and governance actors around the nature and merits of traditional agriculture. Through the case of Meghalaya, a small hilly state in the northeastern region of India largely inhabited by Indigenous Peoples, this commentary aims to provide the dominant narrative at the local context, evidence of the adaptations in shifting cultivation that contribute to sustainability, and the need to rethink policy relating to shifting cultivation at the local level.

Keywords

Traditional Knowledge Systems, Meghalaya, Shifting Agriculture, Shifting Cultivation, Agriculture, Indigenous Peoples, Northeast India

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Introduction

In the global food systems narrative, Indigenous Peoples and their food practices and knowledge systems recently have been recognized as a system that fosters resilient agricultural systems; the contribution of farmers to the conservation and development of plant genetic resources has been recognized, leading to a re-evaluation of how to strengthen agri-food systems at the local level (Food and Agriculture Organization of the United Nations [FAO], 2009). Among these indigenous food systems, shifting cultivation is a major agricultural practice.

As per the United Nations' *Glossary of Environment Statistics* (1997), shifting agriculture is a "system in which a plot of land is cleared and cultivated for a short time, then abandoned and allowed to revert to producing its normal vegetation while the cultivator moves on to another plot" (p. 66). In 1957, the FAO declared shifting cultivation to be the most serious land use problem in the tropical world (FAO Staff, 1957). This resulted in the start of a consistent narrative around this agricultural practice (and any other form of indigenous farming) as primitive and unscientific, although it continues to exist as a critical farming method for Indigenous communities across the tropics.

A closer look at shifting cultivation reveals its potential to adapt and mitigate climate change through its agroecological features (Erni & Carling, 2014). It aligns with the United Nations' Committee on World Food Security (CFS) target goals for food security through its potential for sustainable food production. It can provide a diverse, extended, and nutritional food supply with lower pest pressures and higher surrounding biodiversity (FAO, n.d.). Carbon sequestration within the production area is also enhanced (Borah et al., 2018). Shifting cultivation, when "managed sustainably from the viewpoints of both natural resource management and household food security under conditions of sufficient and legally recognized access to land (Erni, 2015, p. viii), remains a suitable system for many Indigenous Peoples around the world.

Global Narrative

There is increased local government interest in traditional agriculture for sustainable food security

(FAO, 2009) while also realizing the importance of maintaining the Indigenous people's cultures, environments, and food and knowledge systems (Kuhnlein et al., 2009). This discourse is relatively new in academia and policy, in contrast to the dominant international policy narrative that consistently 'dis-included' indigenous growing methods and which, in turn, influenced national agendas. For decades, laws and policies around indigenous food systems of colonial governments as well as postcolonial governments in Asia reflected this. The Lao government, for example, has consistently maintained a strict policy against swidden (shifting) cultivation since 1975 (Kenney-Lazar, 2012).

Indian Context

In India, too, shifting cultivation, locally known as *jhum*, *bewar*, *podu*, *valre*, and other names, has been misrepresented for decades. The geography textbook currently in use throughout the country and released by the National Council of Educational Research and Training (NCERT) refers to shifting cultivation as "slash and burn agriculture"—a form of "primitive subsistence farming" (NCERT, 2007, p. 34). This negative perception of shifting cultivation, which starts in school, continues to demonstrate the established paradigm: a narrative of shifting cultivation as harmful and backward.

Indigenous people groups make up 8.2% of India's population (Office of the Registrar General & Census Commissioner, India, 2011). Government policies continue to incentivize settled agriculture at the state and national level even as an estimated 2,100,000 acres (8,500 square kilometers) are still under shifting cultivation.

For example, in the state of Mizoram (inhabited largely by Indigenous people), a new land use policy was passed in 2011, banning shifting cultivation and replacing it mainly with the cultivation of palm oil plantations (Bose, 2019). Forest departments of various states continue to see the practice as bad land use and a cause of forest destruction due to burning. The National Forests Policies, 1952 and 1988, have also emphasized the need to control shifting cultivation and rehabilitate the affected areas (Tripathi & Barik, 2003). From 1983 to 2008, the government of India continued its drive to move away from shifting cultivation and

toward the rehabilitation of Indigenous farmers through land consolidation, social forestry, the promotion of horticulture, the cultivation of cash crops, and other measures (Satapathy & Sarma, 2003).

Nonetheless, in 1997, the World Resources Institute (Thrupp et al., 1997) addressed various myths and realities around shifting cultivation, noting that the practice was diverse and nonlinear, responding to both agroecological and socioeconomic factors. Moreover, through the documentation in 2015 of the International Centre for Integrated Mountain Development (ICIMOD), supported by the International Fund for Agricultural Development (IFAD), it was revealed that the common stereotype of shifting cultivators as engaging in wanton destruction of forest ecosystems is more the result of “misunderstanding and misinterpretation than a real truth” (Erni, 2015, p. 12).

A historical analysis of the use of controlled fire among forest dwellers and Indigenous people shows that the use of controlled fire dates back to 50,000 years. This use of controlled fire has been mainly for the maintenance of forest ecosystems and pest control (Thekaekara et al., 2017). Since then, the FAO itself has changed its stance—most notably with the FAO Policy on Indigenous and Tribal Peoples 2015, which provides a clear framework that engages with the interests of Indigenous communities in the context of agriculture and food policy. This shift of perspective has emerged from key international instruments, such as the International Labour Organization (ILO) Convention 169 (Indigenous and Tribal Peoples Convention, 1989) and the subsequent United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (2007), which has had significant policy implications in recognizing the role of Indigenous Peoples as indisputable stakeholders in the development mandate in the world.

In India, a similar change in policy orientation emerged with the National Institution for Transforming India (NITI) Aayog, the premier think tank of the national government, when releasing the report *Shifting Cultivation: Towards a Transformational Approach* (Pant et al., 2018). This was the first time the Indian government had recognized a road-

map for a positively transformative approach to shifting cultivation policy in India. Recognizing the significance of indigenous food systems for many upland states in northeastern India, the need to do away with previous policies’ incoherence, and the importance of regenerating fallow land for increasing forest cover, the report brought about a new optimism for the possibility of new national policy that would be beneficial to Indigenous Peoples, and especially Indigenous farmers of upland regions (Pant et al., 2018).

However, questions remain. If New Delhi’s premier think tank recommends changes, will it translate into tangible outcomes for Indigenous farmers?

Shifting Cultivation in Meghalaya

Drawing from the above inquiry, we will examine the case of a small state in the Himalayan region of northeast India, Meghalaya. It has a population of 2.9 million, of which 86% are Indigenous people (Census of India, 2011). The state is inhabited mainly by the Khasi and Garo Indigenous communities, both of which practice the matrilineal system of lineage and inheritance. Women play crucial roles in agrobiodiversity management, subsistence agricultural production, and household food provisioning (Ellena & Nongkynrih, 2018). Both shifting and settled agriculture are practiced in this hilly state, with 80% of its population depending on agriculture for their livelihood (Rao et al., 2013). Meghalaya also represents an important part of the Indo-Burma biodiversity hotspot, with high species diversity and a high level of endemism (Meghalaya Biodiversity Board, Government of Meghalaya, 2017).

The mainstream narrative around *jhum* cultivation in Meghalaya, especially among policymakers and those in government, is negative. Despite Meghalaya’s government being dominated by Indigenous people, it brought out a planning document detailing the government’s vision for 2030 that explicitly stated that shifting cultivation poses one of the greatest dangers to Meghalaya’s forests (Rao et al., 2013). Even the *Meghalaya State Biodiversity Strategy & Action Plan 2017*, released by the Meghalaya Biodiversity Board, sees shifting cultivation as a threat to biodiversity (Meghalaya

Biodiversity Board, Government of Meghalaya, 2016).

Despite this dominant mindset about shifting cultivation, ethnological studies have shown that *jhumming* is a diversified system, well adapted to local conditions in moist forest and hilly tracts (Shankar Raman, 2000). Shifting cultivation in its practice of clearing small patches of forest with long fallow periods is, in fact, beneficial to biodiversity, due to the creation of a variety of habitats. Mixed cropping is managed over time through sequential harvesting and crop rotation (Prakash et al., 2017). Farmers in Meghalaya can plant at least 45 traditional varieties of crops throughout the different seasons (NESFAS, 2019).

Further, contrary to the common modern belief that shifting cultivation degrades forests, it has been documented that the fallows are a carbon sink and sustain the local climate. As a system, it is an integrated approach to establishing an agroecosystem in the difficult terrains of tropical hill regions that involve forest, soil, biodiversity, and livestock management through Indigenous culture, tradition, and rituals that coevolved with the associated ecosystem (Bhagawati et al., 2015). Also, a long fallow period of 15 years or more after a crop cycle can restore the original soil conditions (Karthik et al., 2009). It is essential to note that the fallow land continues to be a source of fuel and food for the Indigenous communities, as they can forage wild edible plants to supplement their food and nutritional security.

Besides the apparent benefits from shifting cultivation, the larger discourse of the rights of Indigenous people is to secure their food security and food sovereignty. Shifting cultivation relates to “food sovereignty” in that it allows for achieving food security at the local level while also protecting people’s broader values and rights regarding traditional farming (Leventon & Laudan, 2017). This is largely due to the adaptable nature of shifting cultivation as a food system. In the upland areas of Meghalaya, *bun* cultivation, a modified version of the traditional shifting cultivation, is practiced. Modifications of *bun* include changes in cropping patterns, a reduced fallow period, and organic pest management, among others. These adapt well to the local climate and have demonstrated higher

economic and food returns. Reasons behind the adaptation are linked to two essential factors: a steady rise in population and a reduction in available common lands (Upadhaya et al., 2020).


This adaptability also allows for indigenous sustainability solutions to emerge even in the face of new challenges, such as shifting cultivation. In Meghalaya, Indigenous farmers have responded in innovative ways, such as developing their own indigenous weather forecasting methods and saving traditional, stress-tolerant seeds, which demonstrates the climate-resilient nature of indigenous food systems (Mawlong, 2020; NESFAS, 2018, 2019, 2020). Also, in light of the COVID-19 pandemic, it is imperative to recognize the integral role of indigenous food systems in the larger discourse around “health and sustainability solutions.” These indigenous food systems are also critical for Indigenous people’s own response to current and future pandemics (Argumedo et al., 2020).

The Way Forward

The importance of shifting cultivation for Indigenous Peoples has been underlined in high-level policy documents (such as reports, research papers, etc.) as well as through academic research and discourse. Yet, these have little influence on the ground unless they are made enforceable through policy or law and are disseminated and made widely available. Hence, we ask, how do we put policy into practice? What remains is the need for a change in perspective. In order for the narrative to change, the way that people think about shifting cultivation must change. A change in mindset among local policymakers and government officials through engagement and dialogue would pave the way toward support for this indigenous food system. This would then inform new policy in the state to shift its focus from narrow, sectoral approaches to more contextual interventions that bring about a balance between the promotion of traditional shifting cultivation and the prevention of overexploitation of natural resources. This is because if *jhummiyas* (or practitioners of shifting cultivation) are given adequate support, they will be able to leverage their traditional ecological knowledge (TEK) for better natural resource management and promote

higher agrobiodiversity (Darlong, 2004).

A transformed and “transformational” approach to the subject also has larger implications for food sovereignty and nutrition security (Behera et al., 2016). Further research on the subject is also much needed to create a strong and credible database on shifting cultivation in the region. But

beyond that, increasing education and raising the awareness of representatives in government, officials in positions of authority, and policymakers in the state are the most critical factors to a transformed approach. A change in mindset can only be the product of a gradual change in local narratives around traditional food systems. 

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Rising food insecurity and the impacts of the COVID-19 pandemic on emergency food assistance in Michigan

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Abstract

This study of eight types of emergency food assistance organizations in Michigan, USA, is the first statewide study of the COVID-19 pandemic's

impacts on the operations of these organizations. It focuses on the following question: How did the pandemic affect the operations of emergency food assistance organizations? The paper examines how the race/ethnicity of the organization's director was related to program activities, the pandemic's impacts, and responses to the pandemic. It offers new insights into emergency food assistance organizations operated by Black and multicultural directors. The article examines how the sex of the emergency food assistance directors is related to programming, the pandemic's impacts, and responses to it. Most studies of emergency food assistance focus on urban areas. In addition to studying organizations in the state's metropolitan areas, we also study organizations in small towns and rural

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areas. The paper also analyzes two additional questions: How did the government support the state's emergency food assistance organizations during the pandemic? And how do organization leaders perceive government responses to the pandemic?

The sample consists of 181 emergency food assistance organizations. Whites directed most organizations; 82.9% had a primary director who was White, 11% had Black directors, and 6.1% had directors from other racial/ethnic groups. The organizations studied are long-lived; they have been operating for a mean of 20.8 years. The organizations serve meals to an average of 79 people per day. They also provide food items to roughly 185 people daily.

The pandemic had profound effects on the operations of emergency food assistance organizations. About 28% of the organizations indicated that they cut back on their programming, and just over a fifth of the organizations limited their operating hours. Moreover, 23% of the organizations reported that the number of restaurants donating food declined, while 18% percent reported a decline in supermarket food donations. However, 58.9% of the organizations increased the amount of food they distributed, and 61.3% reported an increase in the number of people seeking food from the organization. During the pandemic, White-run organizations obtained government funding from 19 sources, multicultural-led organizations got government support from 10 sources, and Black-run organizations received support from three sources. Forty percent of directors in all-Black-run organizations, 23.5% of those in multiracial-led organizations, and 22.6% of the directors in all-White-led organizations criticized government responses to the pandemic.

Keywords

White, Black, People of Color, Urban, Rural, Charity, Food Bank, Food Pantry, Soup Kitchen, Shelter, COVID-19, Pandemic, Staff, Professional Development, Career, Disaster Planning, Emergency Planning, Food Policy

Introduction

Food insecurity is a vexing problem in America, and the Coronavirus (COVID-19) pandemic

exposed how deeply entrenched it is. The pandemic also laid bare the frailties of the current food system and our inability to deal effectively with rapidly increased demands for food assistance. Despite the emotional anxiety, stigma, blame, shame, indignity, and structural barriers sometimes associated with asking for and receiving free food (Booth et al., 2018; Bruckner, Castro-Campos et al., 2021; Bruckner, Westbrook et al., 2021; de Souza, 2019; Goodman, 2016), more people than usual sought help from emergency food assistance organizations in 2020. Therefore, it is incumbent on us to thoroughly understand how food assistance organizations are affected by national emergencies.

This paper is unique in four ways and provides us with new insights into emergency food assistance organizations. It is an early attempt to examine the pandemic's impacts on emergency food assistance. The article is important because it is the first to conduct a statewide study of such organizations as it assesses Michigan's responses to the pandemic. It is appropriate to study emergency food assistance in Michigan, as data from the U.S. Department of Agriculture (USDA) show that the Midwest has the highest rate of food pantry usage in the country. The data indicate that 5.6% of households in the region rely on food pantries to obtain food (Coleman-Jensen et al., 2018). Moreover, Michigan has high poverty rates, higher than average food insecurity, and a robust emergency food assistance system.

The paper examines the following question: How did the pandemic affect the operations of emergency food assistance organizations? The article is also unique because few studies have examined the racial/ethnic characteristics of the leaders of emergency food assistance organizations or how racial equity influences the work of food assistance organizations. However, leadership is vital in understanding an organization's philosophy about and approach to food assistance work, programming, and outcomes. Hence, this paper examines the demographic characteristics of the emergency food assistance organizations' directors because it is an overlooked part of the research in this genre. More specifically, the paper examines how the race/ethnicity of each organization's director was

related to program activities, the pandemic's impacts, and responses to the pandemic. It offers new insights into emergency food assistance organizations operated by Black and multicultural directors. The article also examines how the sex of the emergency food assistance directors is related to programming, the pandemic's impacts, and responses to it.

Even though 14.4% of rural residents in the U.S. were food-insecure in 2020 (Feeding America, 2021a), most studies of emergency food assistance focus on urban areas. Researchers such as Burke, Durr, and Reamer (2018) point to the importance of examining food insecurity in rural areas, small towns, and urban locales. Sharkey (2009) explores the differences between rural and urban food environments. McEntee and Naumova (2012) also examine rural emergency food assistance organizations. Consequently, besides studying organizations in the state's metropolitan areas, we also examine organizations in small towns and rural areas. The additional information about small-town and rural emergency food assistance will deepen our understanding of the state's food assistance system.

The paper also analyzes two additional questions: How did federal, state, and local governments support the state's emergency food assistance organizations during the pandemic? And how do organization leaders perceive government responses to the pandemic?

The Pandemic, Job Loss, Poverty, and Food Insecurity

Several factors converged to give rise to enormous requests for food assistance in 2020. Foremost among them was the COVID-19 pandemic that spread from coast to coast. The pandemic precipitated a health crisis, excessive job loss, reduced income, school closures, increased poverty, and

increased food insecurity.

The overall U.S. food-insecurity rate had fallen steadily for more than two decades, but the pandemic halted that decline (Feeding America, 2021a). As a result, emergency food assistance programs were called on to play vital roles in supporting and maintaining individual and community food security.

The pandemic showed that despite the prevalence of government food assistance programs, nongovernmental organizations still play pivotal roles in providing food for those in need. In the U.S., the USDA operates 15 food and nutrition assistance programs costing US\$92.4 billion annually.¹ Each year about one in four people participate in at least one government food program (Tiehen, 2020). Nevertheless, despite government programs, one charitable food assistance network, Feeding America, distributed six billion meals across the country in 2020 through its 200 food banks and 60,000 food pantries and meals programs (Feeding America, n.d.-a; n.d.-d; 2021a). According to Feeding America (2021b), 60 million people turned to food banks and other food assistance programs to obtain food in 2020.

The pandemic resulted in millions of people losing their jobs. As a result, unemployment jumped from 3.5% in February 2020 to 14.7% in April. When unemployment peaked in April, 18.1 million people were out of work, and Blacks and Latinx had the highest unemployment rates (U.S. Bureau of Labor Statistics, 2020).² Rising job loss and unemployment were accompanied by declining household income. According to the Census, in 2020, the median household income was 2.9% lower than in 2019 (U.S. Census Bureau, 2021). The Midwest was especially hard-hit; the real median household income dropped by 3.2% in the

¹ The USDA's Food and Nutrition Service (FNS) administers nutrition programs such as the Supplemental Nutrition Assistance Program (SNAP), SNAP-ed Connection, SNAP to Skills, Women, Infant and Children (WIC), Farmers Market Nutrition Program, Seniors Farmers Market Nutrition Program, Summer Food Service Program, School Breakfast Program, National School Lunch Program, Special Milk Program, Team Nutrition, Fresh Fruit and Vegetable Program, Community Food Systems, and the Child and Adult Care Food Program. The FNS also administers the following food distribution programs: Food Distribution Program on Indian Reservations, Commodity Supplemental Food Program, The Emergency Food Assistance Program, and USDA in Schools (USDA Food and Nutrition Service [USDA FNS], n.d.).

² The unemployment rates varied for different racial and ethnic groups. While 5.9% of Whites were unemployed in October 2020, 6.7% of Asians, 8.4% of Latinx, and 10.3% of Blacks were unemployed in that month (U.S. Bureau of Labor Statistics, 2020).

region (Shrider et al., 2021).³

There is a connection between unemployment, household income, and poverty that is related to reliance on food assistance programs. High unemployment rates and declining household incomes often signal increased poverty. In 2019, the U.S. Census Bureau reported that the poverty rate was 10.5% (Semega et al., 2021). That rate rose by a percentage point to reach 11.4% in 2020 (Shrider et al., 2021). The spike in the 2020 poverty rate came after five consecutive years of annual declines (Shrider et al., 2021).⁴

Poverty is a significant contributor to food insecurity. Like unemployment, the poverty rate varied by racial/ethnic group; Whites and Asians had lower poverty rates than Latinx and Blacks (Shrider et al., 2021).⁵ In 2018, about 38.1 million people (11.8% of the U.S. population) had incomes below the poverty line (Tiehen, 2020). Before the pandemic, approximately 11.1% (or 14.3 million households) experienced food insecurity at some point during 2018 (Tiehen, 2020). Things changed dramatically in 2020. Feeding America (2021a) estimated that 45 million people (13.9%) experienced food insecurity in 2020. However, the USDA has lower estimates. It claims that 38.3 million people dwelled in food-insecure households in 2020. That means that 10.5% of the population experienced food insecurity during the year (Coleman-Jensen et al., 2021).

Michigan was ravaged by the pandemic, which impacted poverty and food insecurity. In 2020, the Urban Institute projected that Michigan's poverty rate was 10.5% (Giannarelli et al., 2020). However, the University of Michigan's Poverty Solutions initiative released more dire statistics estimating that 14.1% of the state's population lived below the poverty level in 2020 (Slagter & Guest, 2020).

The USDA conducted interviews with 2,364 Michigan households and found that 11.8% were food insecure at some point during 2020 (Cole-

man-Jensen et al., 2021). However, other sources reported higher food insecurity rates for that year. For instance, the United Health Foundation (2020) indicated that the state's household food insecurity rate was 12.9%.⁶

The Pandemic: New Food Seekers and Greater Overall Demand

The pandemic wreaked havoc on conventional food systems while increasing the demand for emergency food assistance. The amplified need forced some cities to create pop-up and drive-through food distribution sites (Elattar, 2020). Moreover, some of those seeking food were first-time emergency food seekers (Ollove & Hamdi, 2021). For instance, two surveys of emergency food seekers in Connecticut found that 68% and 71% of the people picking up food at a drive-through food bank in East Hartford said they had never visited a food pantry or received free food before COVID-19. Other research supports the assertion that many people who typically did not use emergency food programs did so in 2020. A Feeding America survey found that 49% of respondents said they had not sought or received free food before COVID-19 (Morello, 2020). The pandemic also forced people to use emergency food assistance programs regularly. The East Hartford study found that roughly two-thirds of the respondents said they came to the drive-through food bank at least once per week (Cavaliere et al., 2021).

As the pandemic worsened, it became increasingly difficult to obtain food because emergency food assistance is not a regular part of government emergency or disaster relief efforts. Hence, in places like Baltimore City, emergency responders had to scramble to secure and distribute food to those in need. Other factors such as public health restrictions and new policy guidelines curtailed food access for many. For instance, social distanc-

³ The median household income was US\$67,521 in 2020. Compared to the Midwest, median household incomes declined by 2.3% in the South and West (Shrider et al., 2021).

⁴ In all, 37.2 million people lived in poverty in 2020—3.3 million more than in 2019 (Shrider et al., 2021).

⁵ In 2020, 8.1% of Asians, 8.2% of non-Latinx Whites, 17% of Latinx, and 19.5% of Blacks lived in poverty (Shrider et al., 2021).

⁶ According to Feeding America (n.d.-b; n.d.-c), as of 2017 one in seven (or 1,359,650) Michiganders is food insecure and battles hunger.

ing and food-handling procedures affected places like soup kitchens where food is consumed communally and in close quarters (Avrutina et al., 2020).

Emergency food assistance programs rely heavily on volunteers (Cavaliere et al., 2021; Eisinger, 2002; Gany et al., 2013; Poppendieck, 1994; Weinfield et al., 2014), a fact that placed a strain on the programs during the COVID-19 pandemic. Volunteers were scarce at the same time that the number of people needing food assistance ballooned. Some emergency food assistance organizations closed because they lacked the infrastructure to deal with pandemic demands. For instance, Foodshare in Connecticut reported that 20% of its partner programs closed because their volunteers were affected by COVID-19 (Cavaliere et al., 2021). Hence, in 2020, it was common to see lines stretching for blocks around food pantries, food banks, and soup kitchens in low-income areas.

In response to the pandemic, government entities stepped in with programs to help get food to those in need. For instance, the USDA approved a US\$4.5 billion package to connect producers with consumers through the Farmers to Families Food Box Program (FFFBP) during the pandemic. The USDA created the program to help producers sell foods previously earmarked for restaurants (Galloway, 2020; Taylor et al., 2022; USDA Agricultural Marketing Service [USDA AMS], 2021). The USDA contracted with distributors and wholesalers to provide prepacked boxes of fresh produce, dairy, and meat to food banks, faith-based organizations, and local nonprofits to distribute to families needing food (Sielski, 2020). According to the USDA AMS (2021), between May 15 and December 31, 2020, distributors delivered 132.9 million boxes of food to families nationwide. In Michigan, one of the distributors—Eastern Market—packaged and delivered 2,000 food boxes to food banks and other nonprofits weekly (Galloway, 2020; Taylor et al., 2022).⁷

⁷ When the program ended on May 31, 2021, 173,699,775 boxes of food had been distributed to families seeking food (USDA AMS, 2021).

The Role of Nonprofits in Food Assistance

Food assistance programs have been a part of the American food landscape for more than two centuries (Nichols-Casebolt & Morris, 2002; Taylor, 2009). Initially established by churches and charities as temporary and stop-gap efforts to provide rudimentary food aid in dire situations, food assistance programs are no longer fleeting. They have morphed into long-lived programs that are essential components of the food acquisition strategies that millions use regularly (Berner & O'Brien, 2004; Nichols-Casebolt & Morris, 2002; Poppendieck, 1994; Rochester et al., 2011; Thompson et al., 2019).

Most people think that private food assistance is emergency assistance; however, this mischaracterizes food assistance organizations' roles and functions. The term "emergency" implies short-term, acute reliance on food aid. However, scholars find that emergency food assistance organizations are enduring rather than short-lived institutions. For instance, Thompson et al. (2019) studied seven food pantries in North Carolina and found that they had operated for about 28 years. Daponte and Bade (2006) argue that food assistance organizations meet acute and long-term chronic food needs.

Scholars and critics have scrutinized the functions that food assistance organizations serve. Ahmadi and Ahn (2004) argue that although food banks are a crucial part of the food safety net, they do not address the root causes of hunger. Other scholars say that food organizations' focus on charity distracts from eradicating the root causes of hunger. Critics contend that poverty, not food scarcity, leads people to seek food from food pantries. Researchers surmise that chronic dependence on emergency food perpetuates the need for food banks and emergency kitchens and fuels their growth (de Souza, 2019; Fisher, 2018; Riches, 2018). De Souza (2019) further argues that emergency food assistance organizations like food pantries tend to see hunger and asking for food as a problem with the individual rather than structural and systemic problems with root causes that lie

outside of the individual’s control. Individualizing the problem shifts blame from the structures or systems onto the individual.

Bartfeld’s (2003) research supports the above claims. In her study of single mothers in Wisconsin, Bartfeld reports that food pantries were not a temporary safety net or for emergencies only. Instead, the participants in her study routinely used food pantries as sources of food aid. Bruckner, Westbrook et al. (2021) found that food assistance seekers used Boulder, Colorado’s, food assistance programs frequently to ensure that they met their monthly food needs. Mabli and Worthington (2017) found that participants in their study regularly used emergency food assistance programs while also participating in the Supplemental Nutrition Assistance Program (SNAP). Lambie-Mumford and Dowler (2015), Warshawsky (2010), and Tarasuk and Eakin (2003) also found that people needing food assistance used food pantries and food banks regularly. These researchers suggest that the prolonged and regular use of emergency food programs should lead us to focus on why what is described as a temporary or stop-gap measure has evolved into a routine and permanent food acquisition strategy for many.

Carney (2012) is also critical of emergency food assistance organizations. The researcher argues that emergency food assistance organizations tend to focus on distributing food rather than addressing the structural barriers (high unemployment and low wages) that prevent people from obtaining healthy and affordable food.

A Central Role for Food Pantries and Soup Kitchens and the Bundling of Nongovernmental Food Assistance with Government Food Aid

Food pantries and soup kitchens historically have played a central role in alleviating food insecurity in the U.S. These institutions are still salient in the food assistance landscape. In 2017, the USDA reported that 4.7% of American households received emergency food from food pantries and

0.6% obtained food at soup kitchens; see Table 1.

As the table shows, the incidence of obtaining food from pantries and emergency kitchens increases when households are food-insecure. The table also shows a strong relationship between poverty and food insecurity. It indicates that almost two-thirds of households with income that are 185% below the poverty rely on food pantries and emergency kitchens to secure food (Coleman-Jensen et al., 2018).

A more in-depth analysis of the use of food pantries reveals racial disparities too. Black households were more likely to report using food pantries than other racial and ethnic groups. While 3.5% of White (not Latinx) households obtained food from pantries, 6.5% of Latinx households and 9.4% of Black households got food from pantries (Coleman-Jensen et al., 2018).

Some food activists argue that food pantries and soup kitchens are prevalent and permanent fixtures because government-run food programs do not provide enough funds to enable program participants to purchase the food needed. Data from the USDA support this claim, which reports that more than half of food pantry and emergency kitchen users receive SNAP, Women, Infant and

Table 1. Food Insecurity and the Use of Food Pantries and Emergency Kitchens

Household Characteristics	Percent Using Pantries	Percent Using Emergency Kitchens
All U.S. households	4.7	0.6
Food-secure households	1.8	0.2
Food-insecure households	26.0	3.3
Households with low food security	20.9	1.9
Households with very low food security	34.2	5.5
Households with income less than 185% of the poverty line		
Food-secure households	34.5	34.6
Food-insecure households	65.5	64.5
Households with low food security	31.2	24.1
Households with very low food security	34.3	41.3

Source: Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2018). *Statistical supplement to household food security in the United States in 2017* Administrative Publication No. 079). U.S. Department of Agriculture Economic Research Service. <https://www.ers.usda.gov/webdocs/publications/90029/ap-079.pdf>

Children (WIC), and other government nutrition program benefits (Coleman-Jensen et al., 2018).

Other studies show a long-time connection between the receipt of government food aid and the use of emergency food assistance programs. The links are enduring, in part, because some emergency food assistance organizations help their clients find out about government food programs and help them apply for and obtain food assistance benefits. For instance, Eisinger (2002) examined the extent to which 92 emergency food assistance programs in metropolitan Detroit shared the task of providing food to the needy by helping their clients gain access to government nutrition programs. The researcher found that 17% of the organizations helped people participate in SNAP and WIC, and 47% encouraged people to apply to government food programs. The practice occurs nationwide. Weinfield et al. (2014) found that 22.7% of food assistance programs in the U.S. offered help to clients to gain access to government nutrition assistance programs; an additional 35.6% of the food assistance organizations provided information to clients about government nutrition assistance programs.

Emergency food assistance organizations have found it challenging to secure adequate institutional resources. Prepandemic studies find that the organizations in this sector are under-resourced. For example, a survey of 60 New York City emergency food organizations found that most were in precarious financial situations, and some were closed or on the brink of closure (Gany et al., 2013). Chapman (2020) similarly found that the pantries studied in Missouri were under-resourced. A national study of food pantries found that 28% did not have enough food to meet their clients' needs (Weinfield et al., 2014). The pandemic strained the resources of emergency food organizations further and limited their ability to respond effectively.

Schools as an Emergent Site of Emergency Food Assistance

Children are particularly vulnerable to food insecurity, and COVID-19 increased that

vulnerability. The pandemic made it necessary to link schools to emergency food distribution. School-based food assistance programs became more explicitly linked to emergency food programs and organizations because many children obtain their meals through school breakfast and lunch programs.⁸ Jablonski et al. (2021) studied emergency food assistance for children in five cities after schools closed during the pandemic. The researchers found an increased need for food assistance and a shortage of volunteers in Albany, New York; Austin, Texas; Cleveland, Ohio; Denver, Colorado; and Flint, Michigan. When schools closed in spring 2020, rules governing school meal programs were relaxed, but schools had to scramble to provide meals to children. Because federal guidance was either limited or absent, individual schools and school districts had to figure out how to establish the new feeding programs independently.

The federal government did allow schools to serve “grab and go” food packages to all children regardless of whether they were participants in the school breakfast or lunch programs. This service continued through the summer and fall of 2020 (Guthrie, 2020). In the case of Flint, the Flint Community Schools established sites that provided youths with three breakfasts and three lunches on Tuesdays and four breakfasts and four lunches on Thursdays. Cleveland took another approach; it provided students with backpacks filled with food (Jablonski et al., 2021).

The Demographic Characteristics of Leaders in Emergency Food Assistance Organizations

Only a handful of studies have examined the demographic characteristics of leaders in emergency food assistance organizations. Those studies find demographic profiles that are predominantly White and female. One of the earliest studies of this nature found that most of the food pantry directors studied in Alabama and Mississippi were White (Duffy et al., 2006). More recent studies find

⁸ In 2020, more than 29 million children participated in the National School Lunch Program, and 15 million obtained food through the School Breakfast Program (Jablonski et al., 2021).

similar demographic profiles in other locations.⁹ Chapman (2020) studied food pantry directors affiliated with Feeding Missouri; he found that they were predominantly White.¹⁰ Additionally, a 2021 study released by the Houston Food Bank—the largest food bank in the Feeding America system—found that although people of color composed the majority of the 388 employees, most directors and executives were White (Rios, 2021). So, although there were many fewer Whites on the staff than Blacks or Latinx, more Whites were on the leadership team than all other racial groups combined (Rios, 2021).¹¹

Methodology

Survey Methodology: Identifying and Selecting Emergency Food Assistance Programs

We studied emergency food assistance organizations in Michigan during the summer and fall of 2020. For data sources, we used Data Axle Reference Solutions¹² (formerly ReferenceUSA), the Food Bank Council of Michigan, Food Bank of Eastern Michigan, the website <https://foodpantries.org>, and Feeding America to identify emergency food organizations in Michigan. We communicated with 530 emergency food assistance providers for whom we had contact information to ask them to complete a survey about the emergency food organizations they operate. The survey, designed on the QualtricsXM platform, could be self-administered or completed on the telephone. Emergency food assistance staff were usually too busy during daytime hours to take a telephone survey, so they were sent a hyperlink to complete it at their convenience. We offered study participants US\$35 in compensation for their time; it took about 45 minutes to complete the instrument. We collected data from July 10, 2020, to

February 5, 2021. We received 272 responses, of which 181 were usable. We analyzed data from the Qualtrics survey in IBM SPSS (Version 27.0).

Defining Urbanized Areas, Urban Clusters, and Rural Designations

We used U.S. Census Bureau (2020a) guidelines to classify urban and rural areas. According to the census, an urbanized area is a continuously built-up setting with a population of 50,000 or more. The bureau defines an urban cluster as a small urban area or locale outside a metropolitan area or central city incorporated with at least 2,500 residents but fewer than 50,000 inhabitants. Rural areas are formally incorporated jurisdictions or census-designated places with fewer than 2,500 inhabitants; these are not part of urbanized areas (Michigan Department of Transportation [MDOT], 2013; Ratcliffe et al., 2016; U.S. Census Bureau, 2020a).

Spatial Mapping

First, we used the state of Michigan's GIS Open Data (State of Michigan, GIS Open Data, 2020) system to identify Michigan's urban boundaries. The Adjusted Census Urban Boundary (ACUB) layer is a single polygon representing the boundary of each locality. Next, the SPSS data file was converted to a comma-separated-value (CSV) file with emergency food assistance organizations' addresses. We used ArcPro (Version 2.7.1; ESRI, n.d.) and the ArcGIS World Geocoding Service (ArcGIS Developer, 2021) to geocode the emergency food assistance organizations' addresses, turning each address into a point on the map. The data points were then projected onto a map using the NAD 1983 Michigan GeoRef projected coordinate system (ESRI, 2016). Because some organizations are close, we included inset maps to depict the organizations' locations in Grand Rapids, Flint,

⁹ A 2019 study of 129 staff in 69 food pantries in Oklahoma found that the staff of emergency food assistance organizations were predominantly White and female. The researchers found that 82.4% of the staff were White, 5.6% were Black, 8% were Native American, and 5.7% were Latinx. The staff was mostly female: 74.4% were female, and 25.6% were male (Wetherill et al., 2019).

¹⁰ Of the 334 directors, 83.5% were White, 9% were Black, and 3.3% were from other racial groups. Most of the directors were female; 74% were female, and 24% were male (Chapman, 2020).

¹¹ In 2020, two of the 123 Latinx employees, nine of 176 Black employees, one of nine Asians, and 15 of 68 Whites were a part of the leadership (Rios, 2021).

¹² Data Axle provides profiles and contact information for millions of businesses and organizations in the U.S. and Canada. See <https://www.data-axle.com/>

Detroit, and the Ann Arbor–Ypsilanti metropolitan areas.

Results

Location of Emergency Food Assistance Organizations

As Figure 1 shows, 175 of the organizations studied are in the Lower Peninsula, and the remaining 6 are in the state's Upper Peninsula. Most organizations (54.6%) were in urbanized areas (Table 2). A third of the organizations are in urban clusters, and the remaining 12.7% (24) are in rural areas.

Characteristics of the Directors of the Emergency Food Assistance Organizations

All 181 organizations studied had a primary director; 103 also had a secondary director. In many

cases, organizations had a director and a co-director or associate. Table 2 shows that we identified 284 such personnel. White females dominate the top leadership positions in Michigan's emergency food assistance organizations. Overall, 81.3% of all the directors are White, and 80.3% are female. A higher percentage of Whites are primary directors than secondary directors; almost 83% of the primary directors and 78.6% of the secondary directors are White. In contrast, 11% of the primary directors are Black, as are 17.5% of the secondary directors.

Types of Emergency Food Assistance Organizations Studied

The emergency food assistance directors identified what kinds of programs they administered. They identified 245 programs (see Table 3). An organization may administer multiple programs; for example, a food bank may also operate a soup kitchen, or a food distributor may operate a food pantry. One hundred and fourteen (or 46.5%) of the programs were located in urbanized areas, 92 (37.6%) were in urban clusters, and 39 (15.9%) were in rural areas.

Roughly 77% (189) of the programs have only Whites as directors, and 20 programs (8.2%) have only Blacks as directors. The remaining 36 programs have Latinx, Asians, or Native Americans directors. These programs may also have a combination of Whites, Blacks, and other people of color sharing the directorships.

Food pantries were the most common of the eight types of

Figure 1. Location of Emergency Food Assistance Organizations Studied

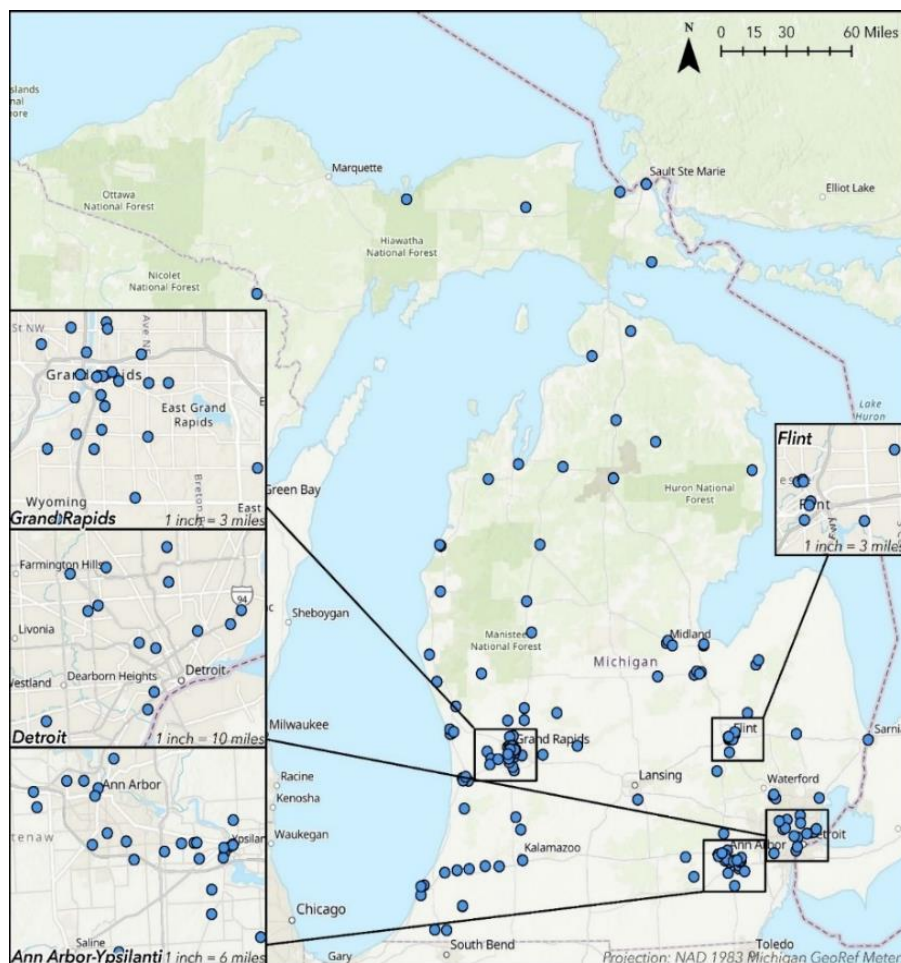


Table 2. Characteristics of the Directors of Emergency Food Assistance Organizations

Characteristics	Total Directors		Primary Directors		Secondary Directors	
	Number (n=284)	Percent	Number (n=181)	Percent	Number (n=103)	Percent
Locale						
Urbanized Area	155	54.6	95	52.5	60	58.3
Urban Cluster	93	32.7	62	34.3	31	30.1
Rural	36	12.7	24	13.3	12	11.7
Race or Ethnicity						
White	231	81.3	150	82.9	81	78.6
Black	38	13.4	20	11.0	18	17.5
Other Races/Ethnicities	15	5.3	11	6.1	4	3.9
Sex						
Male	56	19.7	36	19.9	20	19.4
Female	228	80.3	145	80.1	83	80.6

organizations studied. The 121 food pantries composed 49.4% of the sample. In addition, we studied 52 food distributors, 22 soup kitchens, and 15 food banks. Most food pantries, soup kitchens, and food banks are in urbanized areas. So, 61 of the food pantries were in urbanized regions, while another 42 were in urban clusters; only 18 were in rural areas.

Only two soup kitchens and five food banks

studied were in rural areas. We found all-White director teams in the eight types of emergency food assistance organizations. However, only four types of organizations were directed solely by Blacks: food pantries, food distributors, food banks, and residential facilities serving meals. Six of the eight organizational types had multiracial directors. All the institutional types studied had all-female directors; seven of the eight categories of food

Table 3. Characteristics of Emergency Food Assistance Organizations

Types of Emergency Food Assistance Organizations or Programs	Number of Organizations or Programs (Multiple Responses Allowed)		Percent of Emergency Organization or Programs in Various Locales			Percent of Emergency Organization or Program Directors From Each Racial/Ethnic Group			Percent of Male and Female Emergency Organization or Program Directors		
	Number	Percent of Organizations Reporting	Urbanized Area	Urban Cluster	Rural	Only Whites	Only Blacks	Multi-racial	All Male	All Female	Mixture of Male & Female
Number of Organizations or Programs	245	100.0	114	92	39	189	20	36	24	185	36
Percent			46.5	37.6	15.9	77.1	8.2	14.7	9.8	75.5	14.7
Type of Organizations or Programs											
Food Pantries	121	49.4	53.5	45.7	46.2	45.5	70.0	58.3	50.0	47.0	61.1
Food Distributor	52	21.2	20.5	21.7	21.1	21.7	15.0	22.2	12.5	22.7	19.4
Soup Kitchens	22	9.0	7.9	12.0	5.1	9.5	0.0	11.1	16.7	9.2	2.8
Food Banks	15	6.1	6.1	3.3	12.8	6.9	5.0	2.8	8.3	5.9	5.6
Residential—Meals Served	13	5.3	5.3	7.6	0.0	5.8	10.0	0.0	4.2	5.9	2.8
Food Aggregator	8	3.3	1.8	4.3	5.1	3.7	0.0	2.8	4.2	3.2	2.8
Food Gleaning	7	2.9	1.8	2.2	7.7	3.7	0.0	0.0	4.2	2.7	2.8
Food Producing/Growing	7	2.9	2.6	3.3	2.6	3.2	0.0	2.8	0.0	3.2	2.8

assistance organizations had all-male director teams.

Longevity and Structure of Emergency Food Assistance Organizations and Programs

Although organization staff uses the term “emergency” to describe their institutions, the organizations and programs studied have been a part of the Michigan food landscape for decades. Table 4 shows that 158 organizations and programs operated for a mean of 20.8 years. The mean for rural organizations was 15.7 years; it was 21.2 years in urbanized areas, 22.1 years in urban clusters. White directors managed organizations that were operating for about 22.2 years, but Black directors managed organizations operating for about 17.1 years, and multiracial directors led organizations that were operating for 16.7 years. On average, all-male directors managed organizations that have been operational for 25.7 years. The organizations that all-female teams managed have operated for a mean of 20.1 years; those managed by multiracial directors have operated for about 16.7 years.

On average, organizations and programs had 4.7 paid employees. The mean staff size of organizations in rural areas is 2.2; it is 5.5 in organizations in urbanized areas. The organizations with only White directors have 5.8 staff, but organizations with only Black directors have 3.8 staff, and those

with multiracial directors have 3.2 staff. Organizations directed by all-male teams have 7.5 staff, those led by all-female teams have 4.6 employees, and those with a mixture of male and female directors have 3.3 employees.

The pattern is somewhat different for the number of volunteers that organizations have. One hundred and sixty organizations divulged how many volunteers they had. The mean was 61.8 volunteers, while organizations in urbanized areas had a mean of 70.4 volunteers, in urban clusters a mean of 57.2, and in rural areas 40.8.

Organizations that had only Black directors had an average of 32.2 volunteers. The organizations led by only White directors had a mean of 62.5, and those led by multiracial directors had a mean of 75.4 volunteers. While organizations directed by all females or a mixture of males and females had similar numbers of volunteers (58.4 and 57.3, respectively), organizations led by all-male teams had a mean of 90.1 volunteers.

Sixty-four organizations indicated that they served meals to a mean of 79.2 people daily. Organizations in urbanized areas served meals to 102.9 people daily. However, organizations in urban clusters and rural areas served meals to fewer than 50 people per day. Organizations operated by only Blacks served meals to 12 people per day. In comparison, organizations operated by other racial

Table 4. Means Comparisons of Emergency Food Assistance Organizations and Programs

Operations and Services	Number of Organizations or Programs Reporting		Mean of Emergency Organization or Programs in Various Locales			Mean of Emergency Organization or Program Directors From Each Racial/Ethnic Group			Mean of Male and Female Emergency Organization or Program Directors		
	Number	Mean	Urbanized Area	Urban Cluster	Rural	Only Whites	Only Blacks	Multiracial	All Male	All Female	Mixture of Male and Female
No. of Years Operating	158	20.79	21.15	22.08	15.68	22.22	17.07	16.74	25.71	20.89	16.83
No. of Paid Staff	145	4.66	5.52	4.12	2.24	5.08	3.83	3.24	7.50	4.56	3.25
No. of Volunteers	160	61.80	70.38	57.21	40.76	62.46	32.20	75.37	90.06	58.41	57.32
No. of People Meals are Provided for Daily	64	79.19	102.85	44.76	37.0	85.7	12.00	81.67	171.17	78.02	17.50
No. of People Food Items are Given to Daily	85	185.31	109.19	340.11	130.55	243.28	30.75	41.56	47.0	235.02	25.69

groups served meals to more than 80 people daily. It should be noted that emergency food assistance organizations that had all-Black directors had smaller staff and fewer volunteers than other organizations. These factors might limit the quantity of meals they are able to serve.

When we considered the sex of the director, the all-male-run organizations served meals to a mean of 171.2 people daily. Organizations with all-female directors served 78 people daily, and organizations directed by a mixture of males and females served meals to 17.5 people per day. Like all-Black-directed organizations, the ones administered by a mixture of males and females also had a small number of employees and volunteers.

With 85 organizations reporting, the mean number of people given food items to take home was 185.3. While the urban cluster organizations provided food items to about 340 people daily, rural organizations gave away food items to about 130.6 people daily. Those in urbanized areas gave

away food items to 109.2 people per day. Organizations managed by all-White teams gave food to 243.3 people daily, multiracial-led organizations gave food to 41.6 people per day, and Black-run organizations gave food to 30.8 people daily. All-female-run organizations gave food to 235 people per day; all-male-run organizations gave food to 47 people daily. Those directed by a mixture of males and females gave away food to 25.7 people daily.

Additional Services that Emergency Food Assistance Organizations and Programs Provide

Emergency food assistance organizations do not focus solely on serving or giving away food. They usually provide a suite of social, financial, and educational services that may or may not be related to food insecurity. Consequently, we asked organizations to indicate if they provided any assistance with 15 types of services. Table 5 shows that the most popular ancillary service provided information or training on general nutrition. Seventy-eight

Table 5. Other Services Provided by Emergency Food Assistance Organizations and Programs

Assistance that Organizations and Programs Provide	Number of Organizations or Programs Reporting		Percent of Emergency Organization or Programs in Various Locales			Percent of Emergency Organization or Program Directors From Each Racial/Ethnic Group			Percent of Male and Female Emergency Organization or Program Directors		
	Number	Percent	Urban-ized Area	Urban Cluster	Rural	Only Whites	Only Blacks	Multi-racial	All Male	All Female	Mixture of Male and Female
General nutrition	78	53.1	58.2	41.3	59.1	47.7	64.3	72.7	66.7	53.2	45.8
Long-term food security	71	49.3	50.0	40.4	66.7	42.7	64.3	75.0	53.8	50.5	41.7
Utilities	54	36.0	35.8	39.6	28.6	35.4	35.7	39.1	46.7	35.1	33.3
Housing	53	34.2	33.7	38.0	27.3	33.9	26.7	40.0	33.3	35.1	30.8
Health care	51	34.2	40.2	28.3	23.8	30.1	35.7	54.5	46.7	34.5	25.0
Alleviating poverty	47	32.4	38.5	28.3	19.0	30.6	35.7	40.0	53.8	32.4	20.8
Government food programs	35	23.8	27.2	15.6	28.6	17.6	33.3	45.8	15.4	22.0	36.0
Voter registration	35	23.8	31.3	15.2	14.3	17.1	50.0	40.9	15.4	22.9	32.0
Educational issues	35	24.5	35.1	13.3	9.5	19.3	38.5	42.9	8.3	28.0	16.7
Mental health	28	19.2	27.8	10.9	4.8	15.5	30.8	30.4	21.4	22.2	4.2
Jobs	27	18.4	21.5	14.9	14.3	16.2	14.3	31.8	38.5	15.5	20.8
Addiction and substance abuse	22	15.4	20.5	9.1	9.5	10.1	38.5	28.6	15.4	14.3	20.0
Domestic violence	20	13.9	18.2	13.0	0.0	11.9	15.4	22.7	28.6	14.2	4.2
Immigration issues	15	10.4	14.3	6.7	4.5	9.1	15.4	14.3	8.3	12.0	4.2
Policing and incarceration	10	6.9	9.1	4.3	4.8	4.5	14.3	15.0	0.0	7.5	8.0

(53.1%) of the organizations had nutrition education programs. The second most popular program focused on alleviating chronic or long-term food insecurity (such as teaching program participants how to grow foods, providing opportunities to become entrepreneurs through incubator kitchen programs, or selling products grown in community gardens and farms).

Fifty-four organizations, or 36% of the sample, provided help with utilities. About 36% of the organizations in urbanized areas, 39.6% in urban clusters, and 28.6% in rural areas provided help with utilities. Almost 47% of the all-male-led organizations, 35.1% of the all-female-directed organizations, and a third of the male-female-directed organizations provided utility assistance.

Roughly 34% of the organizations assisted with housing and health care. Though food insecurity and seeking food assistance are strongly associated with poverty, only 32.4% of emergency food assistance organizations provided programming to alleviate poverty (such as providing training to enhance skills childcare assistance, and financial

literacy). About 39% of the organizations in urbanized areas, 28.3% of those in urban clusters, and 19% of the rural organizations had programs to help alleviate poverty. More than half of the all-male-led organizations had poverty-alleviation programs; less than a third of other organizations have similar programming.

Emergency food assistance organizations also helped clients gain access to government-run food programs; 35 (23.8%) of the organizations did this. Thirty-five organizations also provided help with voter registration and educational issues. Fewer than 20 organizations worked on immigration issues or policing and incarceration.

Where the Food Served or Distributed in the Organizations Studied Comes From

The food served, sold, or given away in Michigan's emergency food assistance organizations comes from various sources (see Table 6). Local nonprofits are the most significant food source, making up 78.8% of where food is obtained. For instance, nonprofits such as Food Gatherers operate soup

Table 6. Where the Food that is Served or Distributed by Emergency Food Assistance Organizations and Programs Comes From

Where Food Donations Comes From	Number of Organizations or Programs Reporting		Percent of Emergency Organization or Programs in Various Locales			Percent of Emergency Organization or Program Directors From Each Racial/Ethnic Group			Percent of Male and Female Emergency Organization or Program Directors		
	Number	Percent	Urbanized Area	Urban Cluster	Rural	Only Whites	Only Blacks	Multiracial	All Male	All Female	Mixture of Male and Female
Local nonprofits	123	78.8	79.3	79.2	76.2	80.2	93.8	62.5	70.6	79.1	83.3
Individuals	116	76.8	61.9	80.8	78.2	79.1	76.9	65.2	82.4	76.6	73.9
Government agencies provide it	113	72.0	72.3	73.6	66.7	73.5	80.0	60.0	76.5	69.8	79.2
We purchase it	111	71.6	73.2	69.8	70.0	71.6	73.3	70.8	70.6	71.1	75.0
Groceries and supermarkets	99	80.5	80.9	85.0	66.7	79.3	90.9	80.0	78.6	79.1	88.9
Farmers	99	65.1	65.4	69.8	52.4	64.3	76.9	62.5	82.4	60.7	73.9
Restaurants	86	56.2	49.4	62.3	66.7	56.0	64.3	52.2	64.7	55.8	52.2
Farmers markets	72	48.0	43.4	52.8	52.4	47.4	75.0	37.5	58.8	42.9	66.7
Community gardens or farms in the area	62	41.1	47.4	34.6	33.3	38.6	60.0	40.9	41.2	39.6	47.8
Our community garden or farm	55	36.2	34.2	36.5	42.9	34.2	53.3	34.8	35.3	34.8	43.5
Local hospitals	28	18.5	15.2	21.6	23.8	20.4	0.0	21.7	17.6	17.0	27.3
Local colleges	23	15.3	16.7	19.2	0.0	15.9	0.0	22.7	11.8	16.4	13.0

kitchens and pantries, but they also collect and aggregate food, which they redistribute to smaller food banks, pantries, soup kitchens, and the like. Feeding America also plays a similar role in the emergency food sector. Other nonprofits in Michigan organize regular food drives and deliver what they collect to emergency food assistance organizations. More than a hundred organizations purchase food; several organizations mentioned buying the food they distribute from Feeding America. One hundred and sixteen organizations indicated that their food comes from individual donations, while 113 got their food from government agencies.

Grocery stores and supermarkets are also essential sources of food. Ninety-nine organizations secured produce and other foods from these entities. Some of this food is purchased, while some are donated. Almost 81% of emergency food assistance organizations in urban areas and 85% in urban clusters obtained food from grocery stores and supermarkets. Two-thirds of the organizations in rural areas also receive food from these sources. Ninety-one percent of all-Black-run organizations, 80% of multiracial-led organizations, 79.3% of all-White-run organizations get food donations from grocery stores and supermarkets. Restaurants also contribute food to emergency food assistance organizations; 86 organizations reported receiving food from restaurants.

During the pandemic, farmers became important food suppliers to emergency food assistance organizations. The FFFBP purchased food from Michigan farmers and delivered it to the organizations studied for distribution to families seeking food assistance. Consequently, 99 organizations in the sample reported obtaining food from farmers. Moreover, 72 organizations indicated that they got food from farmers markets. Donated food also came from residents who grew food. Sixty percent of Black directors got food from local community gardens and urban farms, while 53.3% got food from the community gardens or urban farms their organizations cultivate.

Impacts of the Pandemic on Operations

The pandemic had a profound effect on the operations of emergency food assistance organizations. We asked respondents to report whether their organizations decreased or increased their activities, or if things remained the same as the year before the pandemic. For ease of reading, Table 7 reports only the percentage of organizations that reported a decrease or increase in their operations; the unreported rate reflects activities that remained the same. Similar percentages of organizations indicated that the number of programs they operated decreased (28.4%) or increased (27%). A third of the organizations in urbanized areas reported reduced programming, but only one in five from urban clusters made a similar report.

Organizations maintained the same operating hours; almost 58% said their working hours remained the same as in 2019. Nonetheless, 41.2% of the all-male-directed organizations said they reduced their operating hours. The reduced number of volunteers affected the organizations studied. More than half of the organizations (51.8%) indicated that the number of volunteers declined in 2020. In addition, almost a third of the organizations operated with fewer staff members.

Demand for food assistance skyrocketed in 2020. Most organizations (58.9%) reported that the amount of food they distributed increased. Relatedly, 61.3% reported that more people sought food from them than usual. At the same time, 69.1% of the organizations reported that the amount of food they obtained from restaurants remained roughly the same as in 2019, and 73% said that the amount of food received from grocery stores and supermarkets remained about the same as the year before. On the flip side, 50.7% of the organizations reported that other food donations increased. Most organizations (51.9%) also noted that their funding rose in 2020. However, 18.8% of the organizations said the number of people who purchased items from them declined.¹³

Government Assistance Received

Almost half of the organizations (46.4%)

¹³ Some emergency food organizations sell some of what they stock (like nonfood items) at reduced prices. Kitchens can create meals from donated food and sell the meals at very low prices in low-income communities (Buzby, 2021).

responding to the question about the kinds of government assistance they received during the pandemic said they received no government funding. As Table 8 shows, 16 organizations received general grants, and another 12 obtained federal Paycheck Protection Program (PPP) loans. Nine organizations reported that they accessed

funding through the Coronavirus Aid, Relief, and Economic Security (CARES) Act, while seven participated in the FFFBP. Five organizations said they got grants from United Way, while four got small grants from Food Gatherers. Some federal COVID funds went to organizations like United Way and Food Gatherers, which in turn made

Table 7. Impacts of the Pandemic on Emergency Food Assistance Organizations

Pandemic Impacts	Organizations or Programs Reporting		Percent of Emergency Organization or Programs in Various Locales			Percent of Emergency Organization or Program Directors From Each Racial/Ethnic Group			Percent of Male and Female Emergency Organization or Program Directors		
	Number	Percent	Urbanized Area	Urban Cluster	Rural	Only Whites	Only Blacks	Multi-racial	All Male	All Female	Mixture of Male and Female
Number of programs operated (n=141)											
Decreased	40	28.4	33.8	20.8	26.3	26.2	26.7	42.1	18.8	28.2	36.4
Increased	38	27.0	25.7	27.1	31.6	25.2	26.7	36.8	18.8	30.1	18.2
Operating hours (n=144)											
Decreased	31	21.5	18.4	24.5	26.3	19.3	26.7	30.0	41.2	18.1	22.7
Increased	30	20.8	25.0	16.3	15.8	19.3	26.7	25.0	11.8	24.8	9.1
Amount of food distributed (n=141)											
Decreased	27	19.1	16.4	24.5	15.8	19.6	26.7	10.5	12.5	20.4	18.2
Increased	83	58.9	63.0	53.1	57.9	57.9	60.0	63.2	56.3	60.2	54.5
The number of restaurants donating food (n=110)											
Decreased	25	22.7	28.6	17.5	14.3	21.2	45.5	14.3	38.5	19.2	26.3
Increased	9	8.2	5.4	12.5	7.1	7.1	9.1	14.3	0.0	10.3	5.3
Groceries & supermarkets donating food (n=122)											
Decreased	22	18.0	26.2	7.3	12.5	11.8	46.7	28.6	7.1	19.5	19.0
Increased	11	9.0	6.3	14.6	6.3	9.7	6.7	7.1	7.1	9.2	9.5
Number of employees (n=139)											
Decreased	44	31.7	35.1	26.1	31.6	27.6	60.0	31.6	25.0	31.4	38.1
Increased	20	14.4	13.5	17.4	10.5	14.3	0.0	26.3	18.8	14.7	9.5
Number of volunteers (n=141)											
Decreased	73	51.8	54.8	46.9	52.6	52.3	60.0	42.1	68.8	48.5	54.5
Increased	30	21.3	17.8	24.5	26.3	19.6	6.7	42.1	12.5	23.3	18.2
Number of clients purchasing food (n=80)											
Decreased	15	18.8	24.4	14.3	9.1	14.8	50.0	18.2	0.0	22.6	7.7
Increased	6	7.5	7.3	7.1	9.1	6.6	12.5	9.1	0.0	6.5	15.4
Number of people seeking food (n=142)											
Decreased	28	19.7	21.6	18.4	15.8	19.6	20.0	20.0	18.8	17.3	31.8
Increased	87	61.3	60.8	59.2	68.4	60.7	66.7	60.0	68.8	60.6	59.1
Amount of funding (n=133)											
Decreased	19	14.3	15.7	11.1	16.7	13.6	35.7	0.0	21.4	13.3	14.3
Increased	69	51.9	51.4	53.3	50.0	49.5	42.9	75.0	57.1	46.9	71.4
Amount of revenues generated (n=95)											
Decreased	11	11.6	12.2	9.4	14.3	9.5	44.4	0.0	12.5	10.8	15.4
Increased	17	17.9	28.6	12.5	18.4	16.2	11.1	33.3	12.5	17.6	23.1
Amount of food donated to us (n=138)											
Decreased	29	21.0	27.8	14.6	11.1	19.8	50.0	5.6	26.7	18.4	30.0
Increased	70	50.7	45.8	58.3	50.0	51.9	28.6	61.1	40.0	54.4	40.0

grants to small organizations.

Table 8 also shows that organizations with all-White directors listed 19 types of grants, funds, or assistance they received or had access to in 2020, but organizations that had all-Black leadership teams listed only three types of grants or funds they obtained in 2020. Organizations with multiracial leadership teams listed 10 grants or funds that they accessed.

Perceptions of Government Assistance During the Pandemic

Respondents wrote open-ended answers to describe how they felt about government responses to the pandemic. Respondents were more likely to make favorable than unfavorable comments about

governmental pandemic responses. Overall, 45% of the comments supported government responses, roughly a fourth (24.8%) were critical, and 21.7% of the study participants were ambivalent or indifferent. Forty percent of the organizations with all-Black directors were critical of the government assistance, and 26.7% were supportive. Roughly 35% of the organizations with multiracial directors supported government actions, while 23.5% were critical of government support. Approximately half of the organizations with all-White directors supported the government responses, while 22.6% criticized them (see Table 9).

Critiques of Government Responses

Respondents expressed concern over some aspects

Table 8. Government Assistance that Emergency Food Assistance Organizations Received During the Pandemic

Types of Assistance Received	Organizations Reporting		Race/Ethnicity of Organization Directors		
	Number (n=125)	Percent	All Whites	All Blacks	Multiracial
No funding received	58	46.4	44	5	9
General grants	16	12.8	9	3	4
Paycheck Protection Program (PPP) loan	12	9.6	10		2
Coronavirus Aid, Relief, and Economic Security (CARES) funding	9	7.2	8		1
Farmers to Families Food Box Program (FFFBP)	7	5.6	5		2
US Department of Agriculture frozen products and other commodities	7	5.6	4		3
United Way grant or assistance	5	4.0	4		1
Food Gatherers grant	4	3.2	2	1	1
Received face masks to distribute	3	2.4	2		1
Food donations from food bank	2	1.6	2		
Federal Emergency Management Administration (FEMA) grant	2	1.6	2		
Emergency Food and Shelter Program (EFSP) grant	2	1.6	2		
Feeding America assistance	2	1.6	2		
Michigan State Housing Development Authority (MSHDA) grant	1	0.8			1
Obtained loan	1	0.8	1		
Organized fundraiser	1	0.8			1
Dairy products from local farmers	1	0.8	1		
Stimulus checks	1	0.8	1		
Increased food stamps	1	0.8	1		
Additional food through Gleaners	1	0.8		1	
Community Development Block Grant (CBDG)	1	0.8	1		
Michigan Restart loan	1	0.8	1		
Federal funds to purchase food	1	0.8	1		

of government responses to the pandemic. These included either a slow response to the demand for increased food or the lack of response to this need, lack of program support, lack of understanding of how the pandemic affected food assistance programs, and how the food aid rolled out. Respondents made statements like this one that a Black female director from southeast Michigan wrote, “Their response has been very slow or not at all.” Another Black female director from southeast Michigan articulated similar thoughts when she wrote, “I feel like the government could have provided more support to food assistance programs during the COVID-19 pandemic.”

One White female director from southeast Michigan who thought the shortage of food at the outset of the pandemic was indicative of the government’s lack of concern for citizens said, “How do you refuse people food? Everything we stand for—our value statement is ‘hunger relief with dignity.’ So much of what is modeled in the government at every point lack[s] dignity.”

Respondents identified ebbs and flows that corresponded to food surpluses or shortages at emergency food assistance organizations during the pandemic. Study participants felt that local, state, and federal government employees were either unaware of or unwilling to adjust to and manage the fluctuations effectively. As a White female director from southwest Michigan explains,

I feel they were very plentiful, and lots of resources were available during the pandemic. In the beginning, our pantry saw a significant decrease in the number of people we served

because there were so many resources available, people were receiving extra food stamps, as well as children were receiving SNAP benefits. There were more food trucks going on, free lunches for kids, etc. . . . Now that there isn’t all of the extra relief money etc., people are struggling more, so we are seeing an increase again in the number of people we serve each month.

Other directors also reported that they got too much food at times. For instance, a White female director from a multiracial-led organization from southwest Michigan wrote,

Too little food assistance and too much food assistance are both a problem. Finding a solution to food assistance that fits everyone’s needs is nearly impossible when we have an already very broken food system. Too little food assistance is bad for obvious reasons. Too much, and we begin to enable individuals to rely on all the options instead of empowering them to problem solve and find other solutions. History has shown that the emergency response within the food system is unhealthy and only creates long-term problems. I believe increasing food stamps was a good response. I think the idea of allowing individuals to use their food stamps in other ways, for example, at participating restaurants, is a good idea.

She went on to criticize programs that gave food to a broad array of venues to distribute by saying,

Table 9. Race/Ethnicity of Emergency Food Assistance Directors and Perceptions of Government Responses to the COVID-19 Pandemic

Perceptions of Government Responses to the Pandemic	Total Directors Reporting (n=129)		All White Directors (n=97)		All Black Directors (n=15)		Multiracial Directors (n=17)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Critical of government responses	32	24.8	22	22.6	6	40.0	4	23.5
Ambivalent or indifferent about government responses	28	21.7	20	20.6	4	26.7	4	23.5
Supportive of government responses	58	45.0	48	49.5	4	26.7	6	35.3
Don't know about government responses	11	8.5	7	7.2	1	6.7	3	17.6

I don't believe all the funding to pop up food spots or through one organization is the best solution. There were so many food sites near us I couldn't count them all. People could get food all over the place. If you aren't working within emergency food, I can see how someone may think that is a good thing, but there are many reasons in which it only hurts those who they think they are helping. The government's response is necessary, but it's not going to work perfectly, and it may just continue to add to an already broken food system.

A White male director from central Michigan also revealed that his organization and community were inundated with food. He said, "We have received plenty of food in our community—too much, really. [I] have had a hard time finding homes for it all before it goes bad." He suggested that "They really should ask the communities before just sending the food."

He thought the excess food also resulted from the fact that "everyone has a lot more food stamps to buy food too, so they didn't need as much [of the food that we gave away]."

Respondents in southwest Michigan also made similar reports. For instance, one White female director from the region said, "In the beginning, they were giving out TONS of food everywhere. I thought it was a bit much, as the food pantries can take in the food, and we can pass it out. Our numbers went down because of it."

Though the FFFBP was generally popular with emergency food assistance organizations, some directors identified the program's challenges. It was not only the flow of food into the emergency food system that was challenging at times. The amount of food in the boxes and the inability to tailor the quantity of food to the family's size presented a challenge. As a result, one female director from southwest Michigan said that some recipients wasted food because there was too much for small family units to consume. She said,

Whenever you box up food and hand it out to people, there is bound to be waste. For example, the dairy box contained two gallons of milk, cream cheese, cottage cheese, two [kinds

of] Swiss cheese, etc. For a household of one, that was simply too much dairy. Not everyone likes cottage cheese, etc. We heard about people throwing food away.

But others felt differently. For instance, another female director from southwest Michigan said,

The USDA Produce and Dairy boxes were a huge blessing this summer. I was grateful that we were able to participate in that program from May-Sept[ember] 2020. I wish there were a way to continue those boxes all the time. Even though increases were made to the SNAP, we still saw an increase in the number of families that needed additional food.

Some critics of government responses identified the lack of staffing and the handling of the FFFBP boxes as problematic. A White male director from the northwestern part of the Lower Peninsula commented on these two issues in the following statement.

In my opinion, I feel that the government has not handled this well at all. If increased programming has even been implemented, it's not organized or carried out sufficiently. Haphazard. One example is the USDA Farmers to Families Food Box Program. We worked as the main distributor of those boxes as we received them from a grant recipient. ... USDA was short-staffed and provided few answers to questions. Timing to apply, get organized, and get started was very short. While I do not know of all the initiatives the government has implemented for food assistance, I am not satisfied with the efforts that I am aware of.

A White female director from southwest Michigan also questioned the wisdom of providing families with extra money to purchase food. She said, "While trying to help—the government has created a problem by families getting used to maximum benefit and now trying to return to their 'normal' food assistance benefit. Not all money went to

people who needed it.”

Not all communities may have received extra resources. One White female director from the Upper Peninsula said, “We did not see any government response, just [only] from the community via Salvation Army, Meijer’s, Simply Give Program funding and Feeding America.”

Ambivalence or Indifference to Government Responses

Some respondents were either nonjudgmental or indifferent about the government responses, while others simultaneously expressed positive and negative thoughts. For instance, a White female director from southeast Michigan wrote, “The initial response was good but slightly delayed. The government was getting the funding together, and we had to feed people immediately. After the CARES Act expired, the need was just as high, but the funding was lower.”

Similarly, a Black male director from southeast Michigan acknowledged the government assistance but pointed out that, at times, it missed the mark. Hence, he wrote,

There are many levels to the government, so I will try to address each of them. The Federal government has opened up “some” monies to be used for food pantries and soup kitchens, but in hard-hit areas and “hot spot” areas where the funding was needed the most, we have not received the kind of help you would think is warranted for a world-wide global pandemic.

This same respondent praised the state’s and city’s efforts to assist and critiqued the practice of providing resources to larger food assistance organizations while bypassing smaller ones. He noted,

Michigan has tried its best to offer resources and provide funding for larger organizations such as Forgotten Harvest and Gleaners, but for smaller entities that are on the front-lines serving the people, it has been hard to come by although, by far, the state has been extremely helpful in providing food for our children, the elderly, and the homeless. Finally, the city, spe-

cifically Detroit, has been good at getting information to the public, community partners, and food pantries. They have also been great in pointing us smaller food pantries in the right direction of where available food is for our clients. They have been instrumental in partnering with the Michigan Department of Education to provide meals for children in Detroit Public Schools. However, they themselves have not been strong in providing local nonprofits, food pantries, and others in the food industry the necessary funding to provide service. Although this sounds bleak, the pandemic has taken a toll on everyone, and as this is the first (and prayerfully the only) time we are to go through this, I believe that the government’s approach was as best as it could be among the circumstances. But honestly, I truly believe it could have been better.

Support for Government Responses

Many study respondents were pleased with government responses and expressed gratitude for their organizations’ and clients’ aid. For instance, a White female director from central Michigan said, “We loved receiving and distributing the dairy boxes and veggie boxes to families in our community. This was the best thing, in my opinion, the government could do for families. We love fresh fruits, veggies, and dairy.” A White female director from the northwestern part of the Lower Peninsula had similar thoughts. She said, “We loved the partnership with farms. Our guests were able to take [home] entire boxes of fresh fruits and vegetables because of that program.”

A multiracial male director from the northeastern portion of the Lower Peninsula Michigan also praised the food program, saying, “It has been a good opportunity to work with the USDA to provide food. We fed over 750 families for 26 straight weeks with no stopping.” A White female director from southeast Michigan was also happy with the FFFBP. She noted that,

The Farmers to Families Food boxes have made a huge impact for our clients. Since our pantry runs mostly on foods purchased from grocery stores, the empty store shelves of the

pandemic caused great challenges in stocking the pantry. There were limits on the number of cans a customer could buy at the box stores for many months. Four cans of green beans don't feed too many families. Thus, the government filled in those gaps with the food boxes providing a variety of food groups within—meat, dairy, and produce. Our clients continue to thank us for providing these boxes to them. And we pass those thanks on to the quick action of the federal government.

A White female director from the eastern shores of the state loved the FFFBP. She said, "The amount of government-subsidized food boxes that were distributed in our county was amazing. We have at least one pop-up-pantry food distribution weekly in our city." Respondents also applauded the decision to increase payments to SNAP recipients. A White male director from central Michigan said, "I believe that the increase in food stamps has been helpful. I think people who have been furloughed from jobs are having more difficulty in accessing food." A White female director from southwest Michigan felt the same. She said, "I think increasing the amount of money individuals received on their Michigan Bridge Cards [SNAP] was critical in keeping families from going hungry."

Others like a White female director from southeast Michigan were "happy to see SNAP amounts raised to the maximum." But "for folks who were already receiving the maximum amount, we would have liked to see that number raised." Some directors thought the government's increase of SNAP dollars reduced reliance on emergency food assistance organizations. A White female director from the northwestern part of the Lower Peninsula explained, "The extension of the SNAP benefit to the maximum [per] family has caused guests not to use us as much as they have in the past." Finally, a White female director from southeast Michigan remarked, "They have done what they can. I don't expect them to carry [the] full burden. It's a partnership between government and private sector to take care of vulnerable in the community."

Discussion

Our study supports the arguments of researchers who contend that well-established and long-lasting organizations populate the U.S. emergency food assistance landscape (Berner & O'Brien, 2004; Nichols-Casebolt & Morris, 2002; Poppendieck, 1994; Thompson et al., 2019). It is undoubtedly the case in Michigan. We found that, on average, Michigan's emergency food assistance organizations were in operation for about 21 years. Food insecurity is so deeply entrenched in Michigan's fabric that an extensive infrastructure exists to assist those in need of food. Emergency food assistance practitioners mobilized the state's vast network of emergency food assistance organizations to help Michigan cope with the soaring demand for food during the pandemic.

Michigan's emergency food assistance organizations serve both short-term and chronic needs. Though many describe emergency food assistance as temporary, short-term, stop-gap, and aid for unusual times of hardship, Michigan's food assistance organizations operate like permanent fixtures. They have staff and buildings, do long-term programming, build extensive relations with government agencies and funders, have suppliers, provide comprehensive services, and have substantial clientele bases. Similar configurations of emergency food assistance organizations exist in other states. Our finding supports arguments made by Ahmadi and Ahn (2004), Bartfeld (2003), Daponte and Bade (2006), and Thompson, Sugg, and Bard (2019) that emergency food assistance is a sector geared toward alleviating both acute and persistent food needs.

Our study, however, does not suggest that the emergency food assistance organizations studied are purely corporatist in their philosophy and approach (for instance, see the critiques of de Souza, 2019, and Poppendieck, 1994). Although two of the organizations in our study are branches of Feeding America, most of the organizations we studied had small staff and budgets. Seventy-four (40.9%) had 2019 budgets that were less than US\$50,000, while only three had 2019 budgets of US\$1 million or more. The staff of the organizations we studied felt they responded to needs that government social safety nets do not fill.

Critics of food banks, food pantries, soup kitchens, and other emergency food assistance organizations contend that these organizations are not focused on alleviating poverty—the root cause of food insecurity. They suggest that organizations devise programs that inadvertently or purposefully perpetuate the demand for their existence and fuel their growth and longevity (Ahmadi & Ahn, 2004; Bartfeld, 2003; de Souza, 2019; Poppendieck, 1994). Although one cannot argue that the emergency food assistance organizations studied are singularly focused on poverty alleviation, it would be unfair to suggest the organizations were unconcerned with such issues. Only eight of the organizations in our sample focused solely on serving or giving away food; the others provided an array of ancillary services as part of their food assistance work. Our study found that 18.5% of the organizations focused on jobs, and 24.5% had programming that dealt with educational issues.

Some of the organizations studied had community gardens and urban farms, either on-site or off-site. Hence, 36.2% of the organizations said they got food that they distributed from their gardens and farms, and 41.1% obtained and distributed food from off-site gardens and urban farms. In this context, the community gardens and urban farms served multiple functions. They provided healthy foods to clients of the emergency food assistance organizations, helped address some of the root causes of food insecurity, and helped reduce the stigma associated with asking for and getting free food (especially if clients helped to grow the food). Growing food demonstrates a level of concern for food insecurity beyond simply distributing food.

Chapman (2020) found that 11.4% of Missouri's food pantries had an on-site community garden, and 7.8% had an off-site garden. In addition, 19.5% of the pantries held nutrition education classes; 11.4% held mental health screenings, 11.4% provided drug and alcohol treatment, 16.5% provided job training, 19.8% provided employment opportunities, 11.1% offered educational programs, and 12% registered voters. Our findings thus are consistent with Chapman (2020), who found that the food pantries were not ignoring poverty alleviation or long-term food insecurity.

That being said, our study did indicate that, to some extent, food pantries and food banks rely on poor people to stay viable. Directors in our study report that, at times during the year, they saw decreased numbers of clients coming to seek food, purchase food from them, or use their services during the pandemic. Program managers felt that the government stimulus checks and increased SNAP benefits provided to their clients were spent in grocery stores rather than at the food pantries. Directors also believed that the food boxes meant less need for people to come to the pantries and food banks. The pandemic provided an opportunity to see a clear link between government financial support for nutrition programs and food insecurity.

Studies show that SNAP recipients rely heavily on emergency food assistance programs to meet their food needs because they do not receive enough money to purchase all the food their households need (Lambie-Mumford & Dowler, 2015; Mabli & Worthington, 2017; Tarasuk & Eakin, 2003; Warshawsky, 2010). The increased amount of SNAP funding, together with the provision of food boxes (Galloway, 2020; Sielski, 2020; USDA AMS, 2021), resulted in fewer nutrition-aid recipients using food banks and pantries.

Notwithstanding, the pandemic increased the overall demand for emergency food assistance. Sixty-one percent of the organizations studied saw an increased number of people requesting food, and 58.9% increased the amount of food they distributed during the pandemic. The overall demand for emergency food assistance rose because the government raised the support to nutrition program recipients for only part of the year. Secondly, studies from Connecticut (Ollove & Hamdi, 2021) and Feeding America (Morello, 2020) report that many clients used emergency food assistance programs for the first time during the pandemic. Hence, the new users sought food from the emergency food assistance organizations—and increased overall demand—even when some regular and long-time users received enough government benefits to stop using the organizations temporarily.

Regardless of the mix of long-time and new food seekers, emergency food assistance organiza-

tions were stretched thin because they had fewer staff and volunteers. Due to these staffing shortages, more than a fourth of the organizations cut back on the amount of programming they offered during the pandemic.

The FFFBP, popular with farmers and federal and state governments (Galloway, 2020; Sielski, 2020; Taylor et al., 2022; USDA AMS, 2021), was also popular with most emergency food assistance organizations. However, FFFBP administrators need to pay more attention to the amount and type of food boxed. Program administrators, intent on giving away food, did little to adjust the quantity of food in the box or the food waste that occurred when families could not consume all they received.

Our findings partly support the claims of scholars who critique emergency food assistance organizations for sometimes serving, giving away, and selling highly processed, high-calorie, energy-dense, high-salt, and otherwise unhealthy foods. As we saw in our survey, this is partly due to the reliance on donated food (Pompa-Metsaars, 2014; Rochester et al., 2011; Sisson & Lown, 2011).

The emergency food assistance organizations we studied relied heavily on donations from non-profits and individuals. For instance, about 77% of the organizations get food from individual donations. The emergency food assistance organizations also relied on donations from restaurants, grocery stores, and supermarkets. However, restaurants were heavily affected by the pandemic, and many closed, went out of business, or curtailed their operations. It is reflected in the data showing that 22.7% of the emergency organizations got less food from restaurants than usual during the pandemic; only 8.2% of the organizations studied reported receiving more restaurant food than usual. The pattern was similar for food donations from grocery stores and supermarkets.

Emergency food assistance organizations have more control over the quality of food they purchase; 72% of the organizations indicate they buy some foods they distribute. Source notwithstanding, it is difficult for emergency food assistance

organizations to control food quality when they rely so heavily on donated food. It is also hard to shift and serve or give away healthier foods. Regardless of the balance between donated and purchased food, many of the emergency food assistance providers in our sample welcomed the infusion of fresh, healthy, and affordable fruits, vegetables, and dairy made available via the FFFBP.

While organizations participating in our study gave away boxes of healthy foods through the FFFBP, they also reported giving away boxes filled with milk and cheese even when they knew some families did not or could not consume those items. The emergency food assistance organizations did not seem to have effective responses to curbing the inadvertent food waste they were helping to generate.

Directors pointed to other challenges with the FFFBP that have important lessons for the USDA and the program nationwide. The USDA should coordinate more effectively with state and local governments, farmers, and emergency food assistance organizations to improve food flow and distribution. The one-size-fits-all food boxes contained too much food for small family units to consume, so recipients wasted some of the food. Such boxed food could come in two or three sizes to accommodate different types of family units more effectively in the future.¹⁴

Directors said the FFFBP distributors delivered too much food to western and central Michigan. Concurrently, directors in Detroit were unable to meet the demand for food in the city. Ergo, we need a distribution system that recognizes when too much food is in one area and too little is available in another. Distributors should also shift excess food to areas still in need. The locations of surplus food and deficits are interesting. Nationwide, Blacks and Latinx proportionally experience the highest levels of poverty (Shrider et al., 2021) and food insecurity (Feeding America, n.d.-e). A higher percentage of Blacks use food pantries and soup kitchens than other groups (Coleman-Jensen et al., 2018). Yet, predominantly Black parts of the state experienced food shortages while distributors

¹⁴ Contractors (distributors, wholesalers, and other vendors) collect the farm products and box and distribute it to emergency food organizations. Those in charge of boxing could pack the food in different sized boxes (USDA AMS, 2021b).

delivered excess food to predominantly White regions. This pattern is worth interrogating nationally to see if the food was maldistributed in other states and whether localities with large numbers of poor people of color received inadequate supplies of government food assistance while White communities received excess food.

Our finding that directors of the state's emergency food assistance organizations are predominantly White is consistent with the leadership characteristics of such organizations in other parts of the U.S. (Chapman, 2020; Duffy et al., 2006; Rios, 2021; Taylor, 2018; USDA National Agricultural Statistics Service [USDA NASS], n.d.; 2019; White & King 2019). Females also dominate the leadership of the emergency food assistance organizations studied. However, all-male-led emergency food organizations tended to have more staff and volunteers and have operated longer than all-female-led or male-and-female-led organizations in this sector. Although other studies have found similar sex distribution in these organizations in other states (Chapman, 2020), none has identified how the gender of the director is related to staffing, volunteering, and longevity.

Organization size and locality have implications for funding and food acquisition. The study found that Black directors tend to operate small food assistance organizations in urbanized areas. Established food assistance organizations usually receive grants and redistribute the funds to smaller organizations. This funding model means that organizations with only Black directors end up with small grants, which they obtain indirectly. The current funding model also does not allow small organizations or ones directed solely by Blacks to establish and nurture direct relationships with funders or the USDA.

Having direct relationships with funders and the government builds the trust and experience needed to secure larger grants and contracts. Black directors suggest that sometimes even the food they obtain to distribute is filtered through aggregators. So, despite being in existence for long periods, organizations directed solely by Blacks are, at times, in marginal positions. However, there is great demand for the services such organizations provide. We suggest that the USDA and other fun-

ders reassess their funding strategies to see if and how the race/ethnicity and sex of the leader, size of the emergency food organization, and organization location are related to funding outcomes.

Black-led food assistance organizations occupy an essential niche that we should not ignore. The language of food assistance in Black-run food organizations has been linked to narrative frames espousing the right to healthy food, food justice, food sovereignty, and dignity. Blacks and other people of color also link food access to structural racism and oppression. Consequently, activists prioritize having control over the production and distribution of food as a critical element of their discourse and action. This approach is evident in the nineteenth- and twentieth-century work of Black food advocates (Alkon & Agyeman, 2011; Bruckner, Westbrook et al., 2021; Passidomo, 2014; Povitz, 2019; Taylor & Ard, 2015; White, 2018). Food assistance providers who were part of the Black Power movement, such as the Black Panther Party, saw their food assistance programs not as charities nor spaces to stigmatize clients but as spaces to exercise sovereignty and justice in the food movement (Alkon & Agyeman, 2011).

Thus, emergency food assistance programs led by Blacks and other people of color try to avoid what de Souza (2019) describes as the neoliberal stigma. She contends that when people seek food from emergency food assistance providers, they are sometimes blamed and shamed. At the same time, the root causes of hunger are overlooked, and hunger is reframed as the individual's fault. Our paper did not focus specifically on blaming or stigmatizing emergency food assistance clients. It found that most White directors were ecstatic with the government food aid that flowed into their organizations. However, embedded in the above quotes from two directors from southwest Michigan are comments suggesting that the additional government food aid was perceived as enabling recipients rather than "empowering them to problem solve." Another suggested that the government had created a problematic situation where "families" were "getting used to maximum benefits." In contrast, Black emergency food assistance directors focused on underfunding, inadequate food aid, unmet food needs, and lack of infrastructure.

Future Research Directions

The study found that the need for food assistance was uneven in the state. The flow of food aid was also inconsistent. Emergency food assistance organizations in metropolitan Detroit—where the pandemic began infecting people first and had the highest infection rates—seemed to receive insufficient food to meet the demand.

Detroit has the largest Black population in the state. Before the pandemic, it was an urban area characterized by high unemployment, poverty, and food insecurity (U.S. Census Bureau 2020b). Nevertheless, enough food was not channeled to Detroit while communities in the southwest portion of the state—about three hours away—were, at times, inundated with food. It warrants further investigation to determine what factors influenced where, how, and how much food was sent to different parts of the state. We also need to understand why food delivery was not recalibrated when food surpluses and shortages were discovered in various parts of the state. Similar analyses should be conducted around the country to determine if this was a common occurrence with the delivery of pandemic food aid.

Continuing with this line of research, we want to do a more in-depth examination of all-Black-led organizations and organizations led by multiracial teams. The questions of interest are: What is their philosophical approach to emergency food assistance? How are these different from the philosophies of White emergency food assistance directors? Where are the emergency food assistance organizations administered by Blacks and other people of color found? What is the state of their financial infrastructure? How are they positioned in the grant-making arena? And who are their clients? What kinds of programming do they do? What are their outcomes? Researchers also need to probe if programs are alleviating poverty and long-term food insecurity and how is this being done. In addition, we need more localized research to understand the local food infrastructure both before the pandemic and with its effects.

There are additional areas where more research is needed; how the race/ethnicity of the leadership of organizations affects the philosophy of the emergency food assistance organizations, what they

do, and their outcomes. We need to understand more about how the sex of the director and other leaders affects philosophy, programming, and results in these organizations. We must also find out more about the differences between urban and rural emergency food assistance organizations.

There should also be more studies of females on the staff and in the leadership of emergency food assistance organizations and the implications of current distributions. Future research should also assess male-operated emergency food assistance organizations to see how they differ from other food assistance institutions.

Conclusion

The COVID-19 pandemic has profoundly impacted the emergency food assistance landscape and potentially transformed it for the foreseeable future. Despite having fewer staff and volunteers, the emergency food assistance organizations studied continued to operate. They provided various services as they served more people and distributed more food than usual.

The increased demand for food assistance resulted in federal program innovations such as the FFFBP. However, the rollout of such programming unveiled significant challenges that need immediate attention. While the government program pleased farmers, who were happy to find new markets for their produce, the distribution was uneven. Majority-Black communities in the southeast part of the state experienced food shortages while predominantly White communities in other parts of Michigan reported food surpluses. Black directors of emergency food assistance organizations identified structural problems with the delivery of food aid, inaccessible funding, and marginality. These problems must be resolved in Michigan and around the country so that organizations like these can be more effective in the communities they serve.

In evaluating which pandemic-related food assistance programs should persist after COVID-19 subsidies, the federal government should consider adjusting and retaining the FFFBP. Hence, it would be worthwhile for the government to assess the FFFBP to improve program design and execution. The government should also assess the

impact of increasing the funds low-income families received in programs such as SNAP while families were getting food boxes. Efforts should be made to understand how to deploy programs like these quickly and effectively in emergencies.

Was the combination of increased SNAP dollars and the FFFBP enough to meet the food needs of families? Data presented above suggest that providing families with these two benefits simultaneously reduced the reliance on emergency food assistance. A much more comprehensive assessment of this topic is needed to learn more about the impacts of bundling these two benefits.

There is a robust infrastructure of emergency food assistance organizations in Michigan and around the country. However, the demand for

food assistance and related programming is growing. Consequently, we should pay more attention to alleviating poverty—the root cause of food insecurity. To do so, cities, states, and the federal government must create more jobs with higher wages. Paying workers living wages require a higher minimum wage. There is also a need for more affordable housing and training to help people develop needed workplace skills and more significant support for substance abuse, mental health, and general health care concerns. In short, food assistance organizations should explore strategies to provide emergency assistance to those in need while working toward permanent solutions to reduce hunger and poverty.

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Beyond procurement: Anchor institutions and adaptations for resilience

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Abstract

According to prior research, local food purchases at anchor institutions (AIs) support community development and food system resilience. AIs are

placed-based organizations, such as schools, universities, and hospitals, that support their communities by virtue of their mission. The COVID-19 pandemic presents a unique opportunity to examine how these institutions can support food system resilience during a period of increasing food insecurity and supply chain disruptions. This study uses mixed methods, including interview and survey data, to investigate how foodservice operations at

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Author Note

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New England AIs adapted to COVID-19 and supported local food systems throughout the pandemic. The findings demonstrate that AIs experienced shortages of everyday food items among their broadline distributors—large, national distributors that carry a wide variety of food products. However, AIs adapted to these shortages and found alternate sources for these products thanks to mutually beneficial relationships with local producers. Having relationships with both local and national distributors was an important source of functional redundancy within institutional food supply chains, reducing institutions' reliance on a single supplier and enhancing their resilience. This finding suggests that local purchasing relationships help AIs adapt to systemic disruptions, further incentivizing farm-to-institution programs. This study also found that AIs engaged in a wide array of food access initiatives during the pandemic, including pop-up grocery stores and serving free or reduced-price meals. These initiatives supported staff members and communities through food shortages and increased food insecurity. We suggest that these diverse food access initiatives, some of which were created in response to COVID-19 and many of which were in place before the pandemic, are an accessible way for AIs to support food system resilience in capacities beyond procurement.

Keywords

Anchor Institutions, Local Foods, COVID-19, Pandemic, Food Access, Food System Resilience, Food Shortages, Farm-to-Institution

Introduction

Anchor institutions (AIs) are organizations, typically nonprofits, that are rooted in place and committed to supporting their communities (Birch et al., 2013). The most common examples of AIs are universities, schools, and hospitals. They have been touted for their potential and realized contributions to community development and resilience (Birch et al., 2013). Many of these institutions include community health and development as a fundamental component of their mission statement, making them “natural allies” in community development work (Schildt & Rubin, 2015, p. 3). Extant litera-

ture has identified three primary avenues for AIs to contribute to community development: by providing employment opportunities to community members, through real-estate development, and by considering community development goals in their procurement choices (Living Cities, 2013).

Using survey and interview data from a wide range of New England AIs, this research investigates how AIs supported their local communities and contributed to food system resilience during the first nine months of the COVID-19 pandemic, a time of supply chain disruptions, food shortages, and increased food insecurity (Leddy et al., 2020; Smith & Wesselbaum, 2020). Specifically, this study seeks to answer the following research questions: (1) how did AIs adapt to the food system disruptions caused by COVID-19? and (2) did AIs support local food systems and communities throughout the first nine months of the COVID-19 pandemic, and if so, how?

Local food procurement is a cornerstone of foodservice operations at many New England AIs. A survey of colleges throughout New England found that universities spent nearly US\$57 million on local foods in 2016, accounting for, on average, 21% of annual food budgets (Farm to Institution New England, 2017). Furthermore, as of 2020, 70 hospitals throughout New England (out of approximately 250 facilities) had committed to local procurement by signing the Healthy Food Pledge developed by Health Care Without Harm (Health Care Without Harm, 2019).

Interview participants in this study represent a wide range of AIs, including schools, hospitals, and universities. In contrast, the survey portion of this research was conducted in partnership with Health Care Without Harm and provides hospital-specific data. The research team used a concurrent nested triangulation strategy to corroborate results and identify themes relevant to all AI types. These results are complemented by the hospital-specific findings, which provide a greater level of detail about the experience of hospitals throughout the pandemic.

Literature Review

Studies examining the role of AIs in food systems have primarily focused on the impacts of institu-

tions' purchasing and hiring practices (Becot et al., 2016; Kane et al., 2011; Roche et al., 2016). AI foodservice operations spend billions annually; in 2010, foodservice operations at hospitals and schools spent an estimated US\$11 billion nationwide (Institute for a Competitive Inner City, 2014). Thus, when AIs leverage their purchasing power and hiring practices to support local food systems, they can have significant economic and employment effects. Farms with local sales spend a higher percentage of their budgets in the regional economy, meaning that money spent on purchases from these farms circulates locally longer (Christensen et al., 2017; Christensen et al., 2019; Henneberry et al., 2008; Jablonski & Schmit, 2016). An input-output model of local food purchases at the University of Vermont Medical Center (UVMMC) found that in 2012 UVMMC contributed as much as US\$2.75 million to the local economy (Becot et al., 2016). This number includes both the US\$1.64 million UVMMC spent directly on local foods as well as its ripple effects; the local expenditures of its vendors and jobs created as a result of this initiative generated between US\$625,000 (lower bound estimate) and US\$1.11 million (upper bound estimate) (Becot et al., 2016).

Farm-to-institution (FTI) programs can also create employment opportunities within local communities. In the UVMMC example, the hospital added two full-time positions to manage and coordinate the increased volumes of local foods, representing over US\$95,000 in labor income (Becot et al., 2016). The total employment effect was 14.3 new jobs spread throughout the region, a multiplier effect of 1.72 (Becot et al., 2016). Case studies looking at the employment effect of farm-to-school (FTS) programs have shown similar results; various studies have found that FTS programs have an employment multiplier effect ranging from 1.27 to 3.30, demonstrating that local food purchases can create new employment opportunities within a region (Becot et al., 2016; Kane et al., 2011; Roche et al., 2016). Farms with local sales typically have a higher reliance on local labor, accounting, in part, for these significant effects (Jablonski & Schmit, 2016).

Institutional markets are of particular benefit to midscale farmers, offering consistent bulk mar-

kets while requiring less time and energy than selling directly to consumers. Kirschenmann et al. (2004) explained that midsized farms struggle because "they are too small to compete in the highly consolidated commodity markets and too large and commoditized to sell in the direct markets" (p. 1). Alarming, the number of midsized farms in the U.S. has consistently declined since the 1950s, leading to a parallel decline in the community benefits associated with them (Kirschenmann et al., 2004). Stahlbrand (2019) sees institutional markets as a possible solution to the plight of midsized farms, arguing that AIs can offer "infrastructure of the middle" through relationship-focused local procurement that allows producers to scale up. Institutional markets also allow producers to diversify their sources of revenue, a crucial component of both farm and food system resilience (Lin, 2011). Typically, institutions source products from a broadline distributor—large, national distributors that carry a wide variety of products. When institutions divert purchases from broadline distributors to local producers, they diversify and shorten their supply chains, supporting these crucial components of food system resilience.

Contributions to Resilience

Food system resilience describes the capacity of a food system to withstand or overcome disturbances (Tendall et al., 2015; Worstell & Green, 2017). This systems-level approach to resilience examines shock's direct and indirect impacts on the entire food supply chain, including production, transportation, processing, and consumption, which have all been adversely impacted by the COVID-19 pandemic (Béné, 2020). Food systems are complex and dynamic, making it challenging to develop one cohesive measure of resilience. However, commonalities between different conceptual models of resilience suggest that resilient systems promote connectivity, demonstrate experimentation and learning, and include diversity and functional redundancy (Fardkhales & Lincoln, 2021; Ungar, 2018). Furthermore, Ungar (2018) asserts that the capacity to withstand shocks is not a trait of the food system itself but rather the result of interactions between its components "that make it

possible for a system or its parts to function well during and after a disturbance” (p. 22). This research will focus on how interactions between AIs, producers, and communities hindered or supported food system resilience during the COVID-19 pandemic. We address two primary shocks to the food system: supply chain disruptions and challenges to food access (Béné, 2020).

Four markers of food system resilience identified in the extant literature are fundamental to understanding the novel context of COVID-19: (1) functional redundancy, (2) experimentation and learning, (3) farm diversity, and (4) connectivity (Fardkhales & Lincoln, 2021; Ungar, 2018). A participatory action research study by Fardkhales & Lincoln (2021) of food hubs in Hawaii during the first nine months of the COVID-19 pandemic serves as an example of how these concepts contribute to food system resilience. This study highlighted that when the island experienced shortages of staple carbohydrates like rice, the food hubs adapted by sourcing locally grown breadfruit (Fardkhales & Lincoln, 2021). This creative thinking is an example of experimentation and learning because the food hubs learned new skills and applied new practices to adapt to the novel context of COVID-19.

The food hubs were a small part of the more extensive food distribution system in Hawaii, and their existence among larger national and regional vendors contributed to functional redundancy and diversity in the state. Functional redundancy exists when multiple system actors perform the same or similar functions, so if one actor fails, there are still others to fulfill that role (Fardkhales & Lincoln, 2021). In this case, when there were challenges with larger distributors, the food hubs were able to source and distribute an alternative carbohydrate. The food hubs’ success was due not only to functional redundancy but also to diversity. Hawaii’s local supply chains did not experience the same transportation disruptions as national supply chains during the first months of the COVID-19 pandemic. When a food system has a diverse array of local and national food suppliers, it is more likely that parts of the system will continue to function well during a shock. However, in a system lacking diversity, a major disturbance can completely wipe

out the capacity of an essential role within the system (Bullock et al., 2017; Ungar, 2018).

Another key contributor to food system resilience is the existence of short supply chains, often characterized by direct relationships with local producers (Hardesty et al., 2014; Thilmany et al., 2020). There is some evidence that during the global upset at the start of the COVID-19 pandemic, short local and regional supply chains were more resilient than their national and international counterparts (Fardkhales & Lincoln, 2021; Food and Agriculture Organization of the United Nations [FAO], 2020; Litchen & Kondo, 2020; Perrin & Martin, 2021). This resilience is partly due to the nimble, connected, and flexible nature of short supply chains and the direct, personal relationships between local producers and buyers (Thilmany et al., 2020). By building diverse relationship networks, short supply chains foster connectivity, diversity, and other critical aspects of resilience (Hardesty et al., 2014; Ungar, 2018).

Institutional Benefits

While the majority of literature on AIs focuses on institutions’ contributions to local food systems, institutions receive numerous benefits from FTI programs. Due to AIs’ embedded, place-based nature, these institutions have a vested interest in supporting their local communities and economies. AIs indirectly reap the benefits of robust local food systems and economies due to the “bi-directional and self-reinforcing” nature of the relationships between communities and AIs (Alexander et al., 2017, p. 1; The Common Market, 2014; Koh et al., 2020). AIs indirectly benefit from strong local economies, which make institutions, like hospitals and universities, more accessible to local customers (The Common Market, 2014; Jablonski & Schmit, 2016). A theoretical model of the role AIs play in local food systems, developed by The Common Market (2014), demonstrate the indirect benefits institutions gain from supporting the local food system, stating institutions benefit from “healthy, nourished constituents and a robust regional economy [that] supports anchor institutions” (p. 4).

Many institutions also use FTI programs to encourage healthy eating among their students, staff, or clientele. FTS programs, in particular, are

used to promote healthy eating behaviors and are associated with a higher intake of fruits and vegetables (Bontrager Yoder et al., 2014; Graham et al., 2004; Joshi et al., 2008; Ohmart & Feenstra, 2004). Other types of institutions have seen similarly promising health effects with FTI programs. For example, a survey of over 2,000 marketgoers at 37 farmers markets on Kaiser Permanente hospital campuses found that 74% of respondents reported eating more fruits and vegetables due to their visit to the market (Crompton et al., 2012). Many FTS programs also have an educational component, teaching students about the environment, nutrition, and the food system (Parmer et al., 2009; Roche et al., 2016). Additionally, FTS programs are associated with an improvement in students' enjoyment of school and increased academic engagement (Wien, 2017).

COVID-19 Disruptions

The COVID-19 pandemic created significant challenges for the food system. The related disruptions provide an opportunity to better understand food system resilience or lack thereof in a unique and unprecedented context. Three critical issues that impacted AIs and the communities they support were the increase in food insecurity, the widespread supply chain disruptions that led to shortages of everyday food items, and a rapid decrease in demand for institutional foodservice (Fardkhales & Lincoln, 2021; Feeding America, 2020; Katz et al., 2021; Ramsey et al., 2020). In addition, many institutions experienced a precipitous decline in demand for their products as hospitals closed to the public and educational courses transitioned online (American Hospital Association, 2021; Katz et al., 2021).

In addition, COVID-19 caused employment disruptions for thousands of families, making food insecurity an increasingly relevant concern (Feeding America, 2020; Leddy et al., 2020; Smith & Wesselbaum, 2020). At the national level, the number of food-insecure individuals grew by 17 million in 2020 (Feeding America, 2020; Gundersen et al., 2021). These spikes in food insecurity impacted the regions covered in this study. For example, Vermont showed a 32.3% increase in food insecurity in the early months of the pandemic (Niles et al.,

2020). In Maine, which already had the highest level of food insecurity in New England, there has been a 25% increase (Han, 2021). Nationally, these effects disproportionately fell on communities of color, exacerbating existing racial disparities (Wright & Merritt, 2020).

COVID-19 simultaneously led to supply chain disruptions and product shortages (Fardkhales & Lincoln, 2021; Ramsey et al., 2020). These disturbances worsened individuals' food access, as many products were widely unavailable at grocery stores during the early months of the pandemic. Institutional buyers experienced similar shortages and could not source common food products from their distributors (B. Williams, personal communication, June 30, 2021). The meatpacking industry experienced particularly significant disruptions; wholesale meat prices fluctuated and increased significantly, affecting institutions' ability to source and pay for these products (Ramsey et al., 2020).

Applied Research Methods

This mixed-methods study is intended to facilitate a greater understanding of how New England AIs' foodservice operations adapted to the COVID-19 pandemic, with a specific focus on local food systems and communities. Interviews included the most common types of AIs, including universities, schools, and hospitals, while survey data focused solely on hospitals. The authors worked closely with two partner organizations, Health Care Without Harm (HCWH) and Farm to Institution New England (FINE), to develop and implement the survey portion of this research. Due to the widespread disruptions related to COVID-19, especially in the healthcare sector, the research team predicted a low survey response rate. Therefore, the research team applied a concurrent nested triangulation strategy to integrate, confirm, corroborate, and cross-validate study findings (Terrel, 2012). Concurrent nested triangulation prioritizes one data collection method, in this case, the qualitative data, which reflects the experiences of a wide variety of institutions. An advantage of this method is that it allows researchers to gain a broad perspective of an issue; in this study, it allowed for an understanding of AIs experiences during COVID-

19 while providing some hospital-specific insights (Terrel, 2012).

Interviews

To develop an in-depth understanding of institutions' experiences during COVID-19, the research team conducted interviews from September to December of 2020. Interview questions focused on the changes in various aspects of institutions' management and operations (Appendix A). A team comprised of faculty and extension educators from the University of Vermont recommended research subjects based on the subjects' interests and efforts in local food systems. Interviews with five AIs (hospitals or educational institutions) and two mid-scale New England intermediaries that regularly conduct business with AIs serve as the basis of the qualitative portion of this research. Researchers interviewed one foodservice administrator from each facility. Researchers chose to interview administrators based on their detailed knowledge of the institutions' foodservice operations and purchasing habits. Interviews lasted approximately 45 minutes to an hour. Since interviews were not audio-recorded, a minimum of two researchers, typically three, collected independent notes and quotes from the interview sessions. To compensate for the lack of audio recordings, notes from multiple independent notetakers were compiled and compared for accuracy to increase the reliability of the findings. These notes served as the basis of the qualitative analysis portion of this research.

Thematic analysis identified themes and patterns in the qualitative data. Each stage of the analysis was conducted independently by two researchers to enhance the quality and reliability of the findings while reducing subjectivity. First, following the principle of emergent thematic analysis, coders read the interview notes, compared them for accuracy, and combined the multi-sets of notes into a single coding document. After this process was complete, researchers uploaded the documents into NVivo for analysis.

Once coders had familiarized themselves with the data, open coding began. Open coding refers to the process of coding every passage with adequate themes. This iterative coding process continued independently until strong and recurrent themes

emerged. The coders then met to discuss their codes, identifying the similarities and differences before collapsing related codes and expanding others. Next, the coders re-read and re-coded the data independently before meeting again to develop a single, consistent description of coding categories to aid in the collective coding process. The iterative process repeated until saturation when no new themes emerged from the data. At this point, interviews and analysis ceased. The following process was axial coding, which involves reviewing open codes for recurrent and forceful themes or categories to identify the broader themes within the dataset. While more extensive quotes were challenging to include without interview transcripts, the results include short quotes to represent and honor participants' voices and support the identified themes (Owens, 1984).

Survey

In collaboration with HCWH and FINE, the research team developed a survey instrument consisting of 34 open and closed-ended questions in SurveyMonkey. This new iteration of the Healthy Food in Health Care Survey, first conducted in 2009 by HCWH, facilitated a better understanding of hospitals' dining programs, procurement choices, and how they had changed in response to COVID-19. This biennial survey tracks metrics related to food purchases and helps HCWH make informed decisions about where to focus its resources and efforts to best support local food purchases at hospitals.

The 34 survey questions focused on hospitals' local food purchases, the impact of COVID-19 on their dining services, and the organization's role as an AI in their community, reflecting similar themes as the interview questions. However, while the interview questions were opened-ended, the survey consisted primarily of closed-ended questions to provide quantitative assessments of the research topics, complimenting the nuanced and longer qualitative responses. The survey was piloted and adjusted as necessary by the research team and an advisory group of Health Care Without Harm partner organizations.

The sampling frame included all healthcare facilities with a dining component located within

the six New England states to be congruent with past iterations of this survey. Although the Healthy Food in Health Care Survey had always surveyed healthcare facilities in New England, this was the first iteration of the survey open to all hospitals in the region, regardless of their involvement with HCWH. Researchers sent invitations to organizations via email and phone to participate in the study. The survey collected data from October to December 2020.

Given the challenges in the healthcare sector, the response rate was understandably low; 30 participants completed the survey, representing around 12% of the 256 healthcare institutions in the region identified by HCWH (Table 1). Due to the low response rate, findings from this survey were not generalizable. Researchers used SPSS to analyze survey data, calculating basic descriptive statistics like mean, frequency, and standard deviation. For the more detailed analysis, institutions that responded that “anchor institution was a new concept” or they “had not taken steps to become one” were considered not engaged in the AI role. On the other hand, institutions that responded that the AI role was “fundamental to their mission” or that they “had taken steps to become one” were considered engaged in the AI role.

Table 1. Facility Locations

State	Respondents	Contacted Facilities
Connecticut	1	37
Maine	10	42
Massachusetts	4	113
New Hampshire	8	33
Rhode Island	1	13
Vermont	5	25

Note: 1 non-response.

Triangulation Strategy

Researchers applied a concurrent nested strategy to cross-validate study findings (Terrel, 2012). Thus, both the interview and survey phases of data collection occurred simultaneously. The concurrent nested strategy prioritizes one data collection method. This study prioritized interview findings

because they encompassed a wide range of AIs. After analyzing the qualitative data, survey findings were integrated and used to corroborate, expand upon, or contradict interview findings. This method increases the reliability of findings and allows researchers to gain a “broader perspective than could be gained from using only the predominant data collection method” (Terrel, 2012, p. 270). In this case, the concurrent nested strategy provided a broad understanding of AIs’ roles within their communities and more detailed specifics about hospitals’ roles during COVID-19 (Terrel, 2012).

Results

This study aimed to expand on the current understanding of AIs. The themes identified by this research were (1) that relationships between AIs and local farmers contributed to resilience and adaptability, (2) institutions supported local food systems in roles beyond procurement, and (3) institutions supported staff throughout COVID-19 in novel ways. The result section presents the themes identified from the in-depth interviews, with information on how the survey results corroborate or expand upon the themes. These themes are followed by a more in-depth analysis of the survey results and hospital-specific findings.

Local Food Relationships: Reducing Supply Chain Disruptions

The COVID-19 pandemic caused widespread supply chain disruptions and panic-buying leading to shortages of everyday food items. Interviewees experienced shortages of food items like meat, potatoes, and pre-packaged foods. According to interviewees, most of these disruptions affected institutions’ ability to get products from their broad-line distributors, with minimal disruptions to the local supply chain. The survey also corroborated that many institutional buyers faced shortages of common food items. For example, of the hospitals surveyed, 67% reported having experienced shortages, primarily of meat and dairy products.

The interviews found that to adapt to COVID-19 shortages, institutions leveraged their relationships with local farmers to source food items they could not procure from their primary distributor.

Interviewees worked with local farms and intermediaries, like food hubs, from throughout New England to source local food products. In New England, products are considered local if they come from or within 50 miles of any New England state. AIs' reliance on multiple suppliers was a crucial source of functional redundancy, reducing institutions' reliance on a single food distributor and the impact of COVID-19 disruptions.

The ability to source local products that were otherwise unavailable increased the stability of these institutions throughout the pandemic. For example, a hospital administrator explained the importance of relationships with local farmers during COVID-19: although 40 to 50 items per week were unavailable through their primary distributor, U.S. Foods, they never felt like they were in a "pinch" because of their reliance on and relationship with local producers. This hospital also highlighted its purchases of local meats as a particular source of resilience. Since it sourced all its meat locally, it was not dependent on the large meatpacking plants and did not experience the shortages in meat products or exorbitant price increases that many buyers did. This is a prime example of how institutions capitalized on existing relationships with local producers to adapt to the supply chain disruptions caused by COVID-19.

Other institutions adjusted to supply chain disruptions by establishing new relationships with local suppliers for food items they could no longer reliably get from their primary distributor. One institution applied this method to source root vegetables, like potatoes, when it experienced a shortage. The relationship established with this new local producer is one the institution plans to continue beyond COVID-19. This foodservice director stressed the benefits of having a "short supply chain" which is less prone to systemic disruptions. One interviewee summarized this sentiment by expressing how thankful they were for their "relationships with local farms" and how much they had supported and helped their institution adapt to the challenges of COVID-19.

Food Access Initiatives: Beyond Procurement

For many interview subjects, local food purchases were still a priority. However, due to the substan-

tial and sudden changes in many institutions' business models, maintaining local procurement levels may not have been financially viable. For example, an interviewee working at a Vermont hospital explained that cafeterias that were previously open to the public were closed, limiting their customer base to employees and patients. Hospitals also only offered essential and emergency care during the first months of the pandemic, further reducing their customer base. Many universities and schools also experienced a significant decline in the number of on-campus students as classes transitioned online, reducing their customer base as well. These changes led many institutions within our sample to reduce their local and overall food purchases.

Even though some institutions within the sample did reduce local purchases, most of them still maintained a strong commitment to purchasing as much local food as was financially viable for their organization. One university explained how COVID-19 had really "solidified [the institution's] commitment to sustainability and local purchasing," demonstrating the values of the university and its strong support for local foods. According to interview subjects, the overall decline in local food purchases was proportionally much smaller than the total decline in food purchases. The experience of a Vermont hospital shows just how committed these institutions are to supporting local agriculture; although the hospital started serving free meals and the foodservice generated no revenue, the hospital maintained its local purchasing relationships sourcing local meats, baked goods, seafood, and cheese products, among others. The survey data also demonstrated hospitals' commitment to local food purchases. For example, although 87% of hospitals reported a decrease in food sales, 40% of the institutions maintained about the same level of local purchases during the pandemic as in 2019. This finding suggests that the decrease in local food purchases was minimal proportional to the overall decline in food purchases.

Although some institutions in our interview sample maintained local purchasing levels, food purchases declined at many institutions. Still, AIs found ways to support their food system in capacities beyond their typical role as purchasers. For example, institutions adopted various initiatives to

support food access by identifying challenges with food access and growing food insecurity in many communities. These initiatives included offering or distributing free and reduced meals, making food donations to nonprofits, and creating pop-up grocery stores.

AIs were highly engaged in these efforts, with all interviewees participating in a new initiative to support food access during the pandemic. For example, the aforementioned hospital that started serving free meals adopted this initiative to support food access among its staff and patients. An elementary school foodservice director summarized the importance of these efforts by explaining that the school is the “*largest restaurant in town*,” meaning that it regularly feeds more people than any other organization in the community. When classes transitioned online, every student became eligible for free meals. This experience expanded how schools thought about and addressed food insecurity in their community. One school explained that it targeted its efforts to have the most significant impact by including more culturally appropriate language and foods, offering more staple food items, and having teachers and paraeducators encourage the use of this program.

Many of these programs, like pop-up grocery stores, were new solutions to the unique challenges COVID-19 presented. Institutions engaging in these innovative new programming efforts to support their communities demonstrate a crucial component of food system resilience: experimentation and learning. While many new programming efforts were temporary, institutions learned valuable lessons for future crises. For example, the

school mentioned above that switched to including more staple food items said this experience has caused it to rethink how it will address issues like food insecurity in the future, applying the valuable lessons it learned throughout the pandemic.

The survey also revealed that many hospitals engaged in food access work. In fact, 87% of respondents had adopted at least one new food access initiative since the start of the COVID-19 pandemic, and 53% had launched at least two. The two most common new programs were pop-up grocery stores (53%) and free or reduced meals for staff, patients, or community members (37%). As shown in Table 2, a wide range of programs was adopted in response to COVID-19.

The survey also demonstrated that many hospitals had food access and local food initiatives in place prior to the pandemic. Before COVID-19, hospitals had an average of 2.2 (SD=1.4) food access programs. Over half of the hospitals conducted food insecurity screenings with patients (53%), just under half hosted an on-site CSA (47%), and 27% used their community benefit program to perform food-based interventions. Table 3 shows the range of food access initiatives that were in place at hospitals prior to the pandemic.

Supporting Staff: Beyond Employment

Many institutions’ foodservice employees were considered essential workers, working in person during the most challenging times during the COVID-19 pandemic. Interviewees highlighted how the pandemic caused anxiety among staff, who had fears of not only contracting the virus but potentially losing their jobs. To assuage these fears,

Table 2. Food Access Initiatives Adopted in Response to COVID-19 (n=25)

Pop-up Grocery Store	Free or Reduced Meals	CSA Program	Donated Surplus Products	Summer Meals (National School Lunch Program)	Drive-up Food Box Distribution
64%	44%	24%	20%	12%	8%

Table 3. Food Access Initiatives in Place Prior to COVID-19 (n=26)

Food Insecurity Screenings	On Site CSA	On-site Farm or Garden	On-site Farm or Garden	Food Access via Community Benefit Program	Fruit and Vegetable Prescription	Off-site Farm or Garden
62%	54%	31%	31%	27%	23%	19%

institutions took various actions to support their foodservice and other employees.

An issue for essential workers was access to common food items. Interviewees reported that during the early months of the pandemic, it was challenging for essential workers to visit grocery stores, which also had issues keeping products stocked. Employers took various steps to address this issue; for example, while some of the food access initiatives outlined above intended to support the greater community, initiatives like pop-up grocery stores, especially at hospitals, were typically intended to support staff's food access. Other organizations also started offering free or reduced meals to staff. These efforts were intended to provide employees with access to healthy, nutritious meals and improve staff morale. The survey portion of this research demonstrated that the most commonly adopted food access initiatives at hospitals were pop-up grocery stores and offering free or reduced meals to staff and patients. Hospitals were not open to the public during the survey period, indicating that these initiatives were primarily designed to support staff.

Efforts to support and retain staff were seen as consequential by institutions and administrators, many of whom felt they could successfully transition their business models because of the exceptional efforts of their staff. For example, when asked what they were proud of about their approach to addressing the pandemic, one hospital foodservice director simply responded that he was *"thankful for the staff at his disposal,"* and he *"couldn't have done it without them."* Other participants echoed these sentiments throughout the interviews; a university administrator explained that having an existing team with established relationships made a huge difference in helping *"get things off the ground."* Knowing the benefits of having a cohesive staff

and good morale, these institutions prioritized supporting staff throughout the COVID-19 pandemic using novel approaches, another example of institutions engaging in experimentation and learning.

Employers also took steps to help address the discomfort and stress of foodservice employees by restructuring how they did business. Institutions varied in their approaches to addressing staff concerns and adapting to COVID-19. For example, some institutions allowed employees to work in reduced shifts with full pay to limit employee exposure; others offered voluntary furlough for employees who were uncomfortable coming to work in the first months of the pandemic, all of whom returned to work by midsummer. At one hospital, which was required to close its cafeteria to the public, causing a significant decrease in revenue, upper management took a pay cut and awarded additional pay to the lowest-earning employees.

Survey Results

Although the survey was distributed to hospitals only, the results largely corroborate the themes identified by the interviews with multiple types of AIs. However, the survey results expand on the interview themes and demonstrate some interesting hospital-specific findings. For example, survey respondents had varying levels of familiarity with the term "anchor institution": 23% responded that it was a new concept, 27% had heard the phrase before, but their institution had not taken steps to become one, and 50% answered that their institution had taken steps to become an AI or that AI activities were fundamental to their mission. As shown in Table 4, engaged AIs had more food access initiatives before COVID-19 and adopted more new initiatives in response to the pandemic. Interestingly even though some hospitals did not consider themselves an AI, they engaged in some

Table 4. Adoption of Food Access Initiatives

Engagement in AI Role	During COVID-19		Prior to COVID-19	
	Average	Standard Deviation	Average	Standard Deviation
Engaged in AI Role	1.87	0.99	2.53	1.19
Not Engaged in AI Role	1.27	1.16	1.80	1.52

Note: During COVID-19: n=25. Prior to COVID-19: n=26.

critical AI roles. Another interesting way these groups varied was in size. Engaged AIs tended to be smaller, averaging 83 hospital beds, while unengaged institutions had an average of 116 hospital beds.

The survey results also provide some interesting insights into local food purchases at hospitals. Over half of the institutions surveyed (53%) had made regional farm purchases in 2019. Of the 87% of hospitals that reported a decrease in overall food sales in 2020, 40% maintained about the same levels of local food purchases throughout the pandemic as in 2019. This finding shows that a core group of hospitals prioritized local purchasing even when their foodservice operations experienced a significant decline in demand.

Discussion

This mixed-method research highlights the numerous ways AIs contributed to food system resilience throughout the first nine months of the COVID-19 pandemic: engaging in local procurement, leveraging relationships with local farms to address food shortages, and creating programs to improve food access for institutional staff and the broader community. Although most of the literature on AIs and food systems focuses on how foodservice purchases can support local producers, this research demonstrates that the relationships established by local procurement efforts also enhance institutional resilience. In the first wave of the COVID-19 pandemic, the short supply chains and direct relationships that characterize FII programs enabled institutions to source the products they needed in the face of widespread disruptions to global supply chains. Other studies demonstrating that shorter food supply chains were more resilient than longer ones during the early stages of the COVID-19 pandemic corroborate these findings (Fardkhales & Lincoln, 2021; Marocchino et al., 2020; Thilmany et al., 2020). In addition, when AIs establish purchasing relationships with local farmers and national vendors, they build diversity and functional redundancy into their food supply chain, which are critical components of resilience.

AIs also benefit from the secondary, indirect effects of strong local procurement programs, among them more robust local food systems and

economies. The literature upholds the idea that relationships between communities and AIs are bidirectional and mutually enhancing (Alexander et al., 2017; The Common Market, 2014; Koh et al., 2020). Yet, the returns on food system investments identified by prior literature are largely indirect and conceptual. The Common Market's (2014) theoretical model of the mutually beneficial relationship between AIs and local producers demonstrates this, stating that institutions benefit from "the development of farm, processing, and distribution infrastructure that make the region—and thus the institution—more successful" (p. 4). Other studies point to the fulfillment of institutional goals like encouraging healthy eating (Bontrager Yoder et al., 2014; Crompton et al., 2012; Joshi et al., 2008). Our findings suggest that institutions reap a more direct benefit from supporting their local food system; the strong mutually beneficial relationships AIs develop with local producers enhance the resilience of their food supply chains.

While the COVID-19 pandemic is unique in many ways, the frequency and severity of shocks are likely to increase worldwide as a result of climate change, making it increasingly vital to develop food system resilience in a variety of contexts (Botzen & Van Den Bergh, 2009). Our findings suggest that FII programs enhance the resilience of institutional supply chains while providing the numerous other benefits identified by prior literature. Furthermore, the shortages most institutional buyers experienced during COVID-19 may motivate nascent AIs to establish relationships with local producers and diversify their supply chains.

This study also highlights how AIs supported their communities beyond procurement during the COVID-19 pandemic, specifically through initiatives to support food access. Because AIs are community hubs and many serve as emergency feeding sites, they are well-positioned to provide food to their communities. While some institutions, like K-12 schools, were compelled to distribute food, others voluntarily took on the role. While much of the current literature focuses on how AIs contribute to regional economies by purchasing local foods, the overwhelming adoption of food access programs during COVID-19 highlights an important way AIs contribute to the resilience of their local food sys-

tems, which has not been widely discussed or emphasized in the existing literature on AIs as a group.

AIs are well-suited to hosting food access programs in times of crisis since both schools and hospitals, the most common AIs, often act as community hubs and emergency feeding sites. Experience as emergency feeding sites during natural disasters provided some AIs with valuable experiences to draw on in this novel and challenging situation. While these institutions had past experiences to draw on, the COVID-19 pandemic inspired many AIs to create new food access initiatives. However, many institutions also engaged in this work before the pandemic. For example, although the most common pre-pandemic initiatives among surveyed hospitals were hosting CSAs and conducting food insecurity screenings, at least 25% of survey respondents also hosted farmers markets, community gardens, or community benefit programs that included food-based interventions. This diverse array of programming efforts demonstrates that AIs can support food access in a myriad of ways, allowing institutions to choose programs appropriate to the available resources and community needs.


Many food access programs at AIs, like CSAs and farmers markets, also support local farms. Several new COVID-19 programs had similar dual benefits; for example, some hospitals highlighted local products at their pop-up grocery stores. We suggest that incorporating local products into existing food access initiatives may be a good way for institutions that have not previously engaged in local procurement to start developing relationships within their local food economy. For hospitals, in particular, using community benefit programs to support initiatives that address food insecurity and support local farms is a promising avenue to build relationships within the local food system without straining the hospital dining budget.

Both the interview and survey stages of this study demonstrate that AIs took an active and creative approach to problem-solving in the face of a severe and systemic shock. AIs' eagerness to adopt new food access programs to address dramatic increases in food insecurity and challenges with food access suggests that AIs contribute to food system

resilience through experimentation and learning, a common indicator of resilience identified by Ungar (2018). AIs also used new food access programs to support and retain essential workers during the early months of the pandemic. Retaining staff, particularly in foodservice, is critical due to the ongoing and pre-existing shortages of workers and high turnover rate in the foodservice industry (Choi & Sneed, 2006; Fickenscher, 2021; Ryan et al., 2015). Beyond retaining staff, these efforts to support employee food access improved morale and allowed institutions to show appreciation for essential workers during the pandemic.

This article relies on mixed methods to examine study findings. A limitation of the interview data is the lack of audio recordings. However, the use of multiple independent notetakers helped enhance the accuracy of interview notes and provided some short, direct quotes from participants. Additionally, given the low response rate, survey findings are not generalizable to the entire New England hospital population. Survey results were not used in isolation but rather to confirm or contradict interview findings. While the concurrent triangulation strategy used to integrate study findings increases reliability, this process also has some limitations. The Healthy Food in Health Care Survey included one specific type of AI, hospitals. Therefore, this research likely overemphasizes hospital-specific findings, while themes relevant to educational institutions may be under-emphasized.

Additional research is necessary to better understand how AIs support local food systems and communities as both purchasers of local products and hosts of food access initiatives during periods of calm and crisis. Specifically, future research should examine what new or temporary programs are most successful in the context of acute need and what longstanding initiatives best enhance the resilience of AIs and their communities. In the face of increased food insecurity during the COVID-19 pandemic, even institutions that did not consider themselves an AI supported their communities through food access initiatives. The widespread adoption of these programs suggests that food access work is an accessible entry point for institutions to begin acting as anchors for their communities.



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Appendix A. Interview Questions

1. Briefly describe your business/operation.
2. How would you describe the changes to your operation under COVID 19?
3. How did COVID19 impact the following aspects (specifically):
 - a. Volume of business (sales)
 - b. Profitability/viability
 - c. Items sold or served
 - d. Supply chains/where you bought or sold goods
 - e. Labor/employee knowledge, skills or capacity (and ability to adapt)
 - f. Labor/employee health and well-being, staffing levels
 - g. Your/managers' knowledge, skills, well-being, etc.
 - h. Building, Equipment, Supplies, or Infrastructure needed
 - i. Policies, Handbooks, Checklists, and Standard Operating Procedures
 - j. Communication systems (e.g., with customers and/or with employees)
 - k. Other
4. How prepared were you in response to these changes? What was relatively easy? What caught you off guard?
5. What resources, internal and/or external, did you find particularly helpful in your transition?
6. What kinds of resources would have helped you to be better prepared?
7. Finish this sentence:
 - a. "I wish I knew then what I know now . . ."
 - b. "One thing I am really pleased with or proud of regarding our approach has been . . ."
 - c. "One thing we definitely wouldn't do again is . . ."
8. If there anything important we missed?

A pilot study assessing the impacts of COVID-19 on Tennessee farmer social needs and pandemic-related anxiety

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Abstract

The COVID-19 pandemic affected the U.S. food systems in unprecedented ways, from restaurant closures to supply chain disruptions. Farmers were left to discover innovative ways to market and sell their perishable products in the absence of traditional outlets like restaurants and farmers markets.

As farmers are important anchors to local food systems, the impact of the pandemic on their health needs to be explored. This pilot study explored how COVID-19 influenced Tennessee-based farmers' social needs, as well as their anxiety related to COVID-19. We conducted a cross-sectional pilot survey among Tennessee farmers to screen for social needs (e.g., financial, childcare, utilities, food, and housing security) and pandemic-specific anxiety, and to assess the utilization of farmer-specific COVID-19 relief funding opportunities. Forty farmers from all three regions in Tennessee participated. There was an increase in positive screens for all measured social needs items from pre- to during COVID-19. Respondents reported increased financial (24.9%), childcare (21.7%), food (20.7%), utility (10.4%), and housing (7.1%) insecurity during the pandemic. Most

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respondents reported some level of anxiety related to COVID-19 (mean score 20.0 ± 5.65). More than half of respondents indicated they did not apply for any farmer-specific COVID-19 relief funding (54.3%). Tennessee farmers are experiencing gaps in their social needs during COVID-19; however, many did not utilize the financial assistance programs available to them. Future studies, with larger, more representative samples, should further explore the relationship between farm household social needs and the underutilization of both farmer-specific external relief funding and other social safety net programs during and beyond the pandemic.

Keywords

COVID-19, Pandemic, Farmers, Social Needs, Mental Health

Introduction and Literature Review

Since March 2020, the U.S. agriculture system has faced numerous disruptions from the COVID-19 pandemic. Farmers have been affected by local, regional, and national shutdowns, interruptions in the food supply chain, and closures of farmers markets and restaurants. Some farmers found themselves dealing with increased short-term localized demand for products (e.g., beef and produce), while others found themselves with limited outlets in which to sell their products, resulting in food waste and product disposal (e.g., eggs and milk) (Johansson, 2021). These vulnerabilities in the food system, revealed by the COVID-19 pandemic, required farmers to adapt quickly. Farmers were forced to shift to direct-to-consumer sales, to seek alternate avenues for their products (e.g., on-farm public events), and to use online sales platforms (Broadaway & Wolnik, 2020; Gunther, 2020; Raison & Jones, 2020; White, 2021).

In response to these uncertainties and their potential ramifications for domestic farmers, the federal government instituted direct relief to farmers through nationwide programs including the

Coronavirus Food Assistance Programs (CFAP 1 & 2) (U.S. Department of Agriculture [USDA], 2021a), and statewide channels were instituted, such as the Tennessee CARES Act: Coronavirus Agricultural and Forestry Business Fund (CAFB) (Tennessee Department of Agriculture, 2020). The initial CFAP 1, launched in May 2020, provided direct financial assistance to producers of eligible commodities that suffered at least a 5% price decline due to COVID-19 (USDA, 2021b). Critics noted various flaws in the CFAP 1 structure (e.g., strict eligibility criteria, price loss payments) that limited access to funding for many farmers (National Sustainable Agriculture Coalition, 2020). Addressing these pitfalls, the second CFAP iteration was launched in September 2020 with expanded eligibility criteria (e.g., flat-rate crops¹ and sales commodities), which led to allocation of more funds to more farmers than the original program (USDA, 2021c). In conjunction with these federal efforts, the state of Tennessee launched the CAFB to aid farmers and others in the food and forestry businesses, and agriculture-based nonprofits that experienced operational disruptions brought on by COVID-19 (TDA, 2020).

Although there has been some media coverage of nationwide farmer-specific relief programs (Jackson-Smith & Veisi, 2021), additional empirical data on the impact and perceived accessibility of these federal and state programs among Tennessee farmers will strengthen the rationale to continue and expand these and similar programs. In addition, these relief programs were specifically designed to assist small- to medium-sized farms (annual incomes <\$900,000²); however, concerns about inadequate funding to relieve all farmers and unequal distribution favoring larger-scale landowners have been raised (Lioutas & Charatsari, 2021). As the production of small U.S. farms appears to be more vulnerable during COVID-19 than large farms (Haqiqi & Horeh, 2021), it is particularly important to explore small-farm utilization of these programs.

¹ Part of the expanded eligibility in CFAP2 was the inclusion of flat-rate crops. These are crops that did not meet the 5-percent price decline needed for eligibility in CFAP1 or crops that did not have available data to estimate price changes affected by COVID-19. Additionally, the list of sales commodities was expanded in CFAP2 compared to the first program iteration.

² All values mentioned in this paper are U.S. dollars.

Although the COVID-19 pandemic is not the first crisis to affect the U.S. farm sector (Alston, 2007; Sutherland & Glendinning, 2008; Thompson & McCubbin, 1987), these farmer relief funds may help to address pandemic-related gaps in social needs among farmers if fully utilized. Previous research has shown the influence of historical crises in the agricultural sector on farm household social needs (Botterill, 2007; Chang et al., 2011; Sutherland & Glendinning, 2008). In addition, various social struggles faced by farm households have the potential to negatively influence the farm business and operations (Chang et al., 2011; Inwood, 2013, 2017; Inwood et al., 2018; Mishra et al., 2010). This dynamic and complex relationship between farm household social needs and farm business and operations, and the role of COVID-19 farmer relief funds within this existing relationship during the current crisis, are yet to be fully explored.

Along with disruptions to their businesses and potential impact on household social needs, the COVID-19 pandemic may have created and/or exacerbated various health-related issues among farmers. Prior to COVID-19, a study of farmer well-being found that factors beyond farmer control (e.g., broad structural issues such as farm policy influencing prices and tariffs) were perceived as most stressful as they related to mental health status (Henning-Smith et al., 2021). As a factor outside their control, COVID-19 may have increased farmer stress and anxiety due to pandemic-related changes in their business models and in social-needs stability (e.g., financial and food security). Because prior to the pandemic the farmer population disproportionately suffered from depressive symptoms and chronic stress (Pappas, 2020; Reed & Claunch, 2020), understanding the impact of COVID-19 on the anxiety status of farmers is of growing concern. Exploring the impact of COVID-19 on the social needs and pandemic-related anxiety of farmers can help to identify and inform interventions for farmers potentially most at risk during the pandemic. To fill this gap, the primary objectives of this pilot study were to explore 1) the impact of COVID-19 on social needs, pandemic-related anxiety, and farm business, and 2) the utilization of and barriers to

accessing farmer-specific relief funding during COVID-19 among Tennessee farmers.

Methods

Study Design and Participants

The cross-sectional survey study was distributed to farmers residing in Tennessee from December 2020 to February 2021. During this time, social distancing guidelines and mask mandates were left up to local authorities across the state and COVID-19 vaccinations were only available to limited numbers of Tennesseans meeting age- and risk-based criteria (Tennessee Office of the Governor, n.d.). Participants were recruited through social media outlets and emails from regional farmers market managers, whose contacts were obtained through a publicly available regional farmers market database (Pick TN Products), using voluntary response sampling methods. Participant inclusion criteria included being at least 18 years old and owning/operating a Tennessee-based farm in the year 2020. All eligible participants completed an electronic informed consent form before proceeding to the survey. No incentive was offered for participating in the study. All study procedures were reviewed and designated as exempt by the University of Tennessee at Chattanooga Institutional Review Board (IRB) (IRB #20-169).

Data Collection and Survey Instrument

This pilot study used a questionnaire administered via an online survey platform (QuestionPro). Of 46 individuals who were eligible and consented to participate in the study, respondents who completed at least 50% of the survey questions were included in analyses ($n=40$).

The 47-item survey included six sections focused on farm characteristics (8 items), farm product marketing and sales prior to and during the pandemic (4 items), farmer-specific COVID-19 relief funding (5 items), social needs (14 items), COVID-19-related anxiety (7 items), and socio-demographics (9 items). The survey was reviewed and revised based on feedback and additions from stakeholders of a regional farmers market network (farmers and farmers market managers) before dissemination.

Social needs screening tool

The social needs screener items were adapted from the Social Needs Screening Tool compiled by the American Academy of Family Physicians (2018). This tool is composed of existing instruments validated for screening core social determinants of health (SDH), including housing (Montgomery et al., 2013), food (Hager et al., 2010), utilities (Cook et al., 2008), childcare (Children's HealthWatch, 2018), employment (Garg et al., 2007), and financial (Aldana & Liljenquist, 1998) security. Minimal adaptations (e.g., adding "prior to COVID-19" or during COVID-19 before each screener item) were made, in order to compare responses between time points.

COVID-19 Anxiety Scale

The validated COVID-19 Anxiety Scale ($\alpha=0.736$) was used to explore participant anxiety related to COVID-19 (Chandu et al., 2020). Each item on the seven-item scale ranges from 1 to 4, with lower values indicating a higher anxiety score. Individual item scores are aggregated with possible COVID-19 Anxiety Scale score totals from 7 to 28.

Data Analysis

All data analyses were performed in SPSS version 28.0. Descriptive analyses were used to calculate the frequency and percentage for categorical variables and the mean and standard deviation for continuous variables. Direct content analysis was conducted in Microsoft Excel on open-ended questions. Common responses (i.e., those reported by more than one participant) were reported in the results.

Results

Participant Sample

Farm and sociodemographic characteristics of the 40 participating Tennessee-based adult farmers are summarized in Table 1. Participants reported operating farms across all three geographic regions of Tennessee with more than half (57.5%) located in the Eastern region. Most participants (92.5%) indicated that they operated a small, for-profit farm (77.5%).

A majority identified as White (89.3%), non-

Hispanic/Latinx (96.4%) and reported having at least a college or vocational degree (71.5%). At the time of the survey, most participants indicated that they did not participate in either the Supplemental Nutrition Assistance Program (SNAP) (92.6%) or other government assistance programs (88.9%), and had active health insurance (81.4%) (private, public, or combination).

Farm Product Sales During the Pandemic

Most participants indicated no change in their gross annual farm product sales from 2019 to 2020 (65.0%); however, a few noted either an increase (17.5%) or a decrease (15.0%) in overall farm sales. Participants reported change in where and how their products were sold during COVID-19. Fewer participants sold their products at local farmers markets (68.6%) and restaurants (20.0%) during the pandemic compared to before the pandemic (77.1% and 28.6%, respectively). Conversely, more participants sold products through Community Supported Agriculture (CSA) programs (31.4%) and on their farms (62.9%) during compared to before the pandemic (28.6% and 51.4%, respectively). Although many participants reported experiencing a variety of business barriers during COVID-19, summarized in Table 2, 17.1% of participants reported that they did not encounter any barriers.

Utilization of and Barriers to Accessing Farmer-Specific Funding During COVID-19

Nearly half of the respondents (19, 47.5%) indicated that they did not apply for any COVID-19 relief funding. When pressed for reasons for not applying, respondents reported a variety of barriers, detailed in Table 3, to accessing and/or utilizing the available funding resources. Additionally, respondents provided open-ended responses which indicated that they did not apply for funding because they felt other people were more in need of funding than they were.

Of those indicating they applied for at least one type of COVID-19 relief funding (13; 32.5%), only one reported that their application was not funded. Of those funded, a majority reported receiving either between \$100–\$4,999 (5) or \$5,000–\$9,999 (5) from all sources (i.e., CFAP 1,

Table 1. Farm and Sociodemographic Characteristics of a Sample of 40 Tennessee Farmers

Characteristic	n (Valid %)	Characteristic	n (Valid %)
Farm Geographic Region in Tennessee		Gender Identity	
Eastern region	23 (57.5)	Female	14 (50.0)
Central region	10 (25.0)	Male	13 (46.4)
Western region	6 (15.0)	Prefer not to answer	1 (3.6)
Prefer not to answer	1 (2.5)	Race	
Farm Operation (years)		White	25 (89.3)
Beginning farmers (<1-10)	20 (50.0)	Prefer not to answer	3 (10.7)
Established farmers (11->20)	18 (45.0)	Ethnicity	
Prefer not to answer	2 (5.0)	Non-Hispanic/Latinx	27 (96.4)
Primary Farm Ownership^b		Hispanic/Latinx	0 (0.0)
Male-owned	22 (55.0)	Prefer not to answer	1 (3.6)
Female-owned	20 (50.0)	Education	
Non-binary-owned	2 (5.0)	High school diploma/GED	2 (7.1)
Racial or ethnic minority-owned	0 (0.0)	Some college	6 (21.4)
Prefer not to answer	6 (15.0)	College/Vocational degree	20 (71.5)
Farm Size (based on average gross annual sales)		SNAP Participant	
Small (<\$350,000 annual income)	37 (92.5)	Yes	2 (7.4)
Medium (\$350,000-\$999,999 annual income)	0 (0.0)	No	25 (92.6)
Large (>\$1 million annual income)	1 (2.5)	Other Government Assistance Program Participation^c	
Prefer not to answer	2 (5.0)	Yes	3 (11.1)
Farm Production Acreage		No	24 (88.9)
<1	4 (10.0)	Health Insurance Status	
2-9	15 (37.5)	Private health insurance	13 (48.1)
10-49	9 (22.5)	Public health insurance	5 (18.5)
>50	10 (25.0)	Private and public health insurance	4 (14.8)
Prefer not to answer	2 (5.0)	No health insurance	4 (14.8)
Farm For Profit or Not-For-Profit Status		Prefer not to answer	1 (3.7)
For profit	31 (77.5)	^a Sample size varies due to missing responses	
Not-for-profit	2 (5.0)	^b Participants had the option to select more than one response option	
Prefer not to answer	7 (17.5)	^c Other government assistance programs included Medicare, Medicaid, Supplemental Security Income, Temporary Assistance for Needy Families, Children's Health Insurance Program, housing assistance	
Age (years)			
26-35	2 (7.1)		
36-45	9 (32.1)		
46-55	4 (14.3)		
55-64	5 (17.9)		
>65	8 (28.6)		

CFAP 2, and CAFB), and only two participants were granted more than \$10,000. When asked what other resources helped support product sales during COVID-19, respondents reported utilizing online sales outlets (40.0%), forming partnerships with other farms or community organizations

(25.7%), and utilizing wholesale markets (17.1%). Respondents provided additional open-ended responses, stating that “less government involvement,” “less restrictive COVID-19 regulations at farmers markets and restaurants,” “more USDA processing facilities,” “increased assistance with

marketing of products and locations,” and “increased funding/grant opportunities” would be helpful resources now or in the future to support product sales. The remaining respondents (8) did not indicate whether they applied for funding.

Social Needs Prior To and During COVID-19

Participant social needs screener results before and during the pandemic are summarized in Table 4. The results indicated an increase in the number of positive screens for all measured social needs items during COVID-19 compared to before the pandemic.

Anxiety Related to COVID-19

Overall, respondents reported some level of anxiety related to COVID-19 (mean score 20.0 ± 5.65). Only four participants had no indicators of anxiety related to COVID-19. These results are summarized in Table 5.

Discussion

Our results indicated that the social needs of Tennessee farmers, including financial, childcare, food, utilities, and housing security, were negatively impacted by COVID-19. These social determinants of health are conditions that can affect a wide range of risk factors and health outcomes among farmers (Braveman et al., 2011).

While the widening of SDH disparities has been noted in other U.S. populations during the pandemic (Ku & Brantley, 2020), considering the vital role of farmers in local food systems, to

Table 2. Barriers to Grow, Raise, Market, and/or Sell Products Experienced During COVID-19 by a Sample of Tennessee Farmers

Farm Business Barrier ^b	n ^a (Valid %)
Limited outlets for products	15 (42.9)
Restrictive safety measures enforced at farmers markets	12 (34.3)
Restaurant closures	11 (31.4)
Difficulty locating seeds, animal feed or other supplies	10 (28.6)
Issues finding reliable labor	8 (22.9)
Long wait times for processing meat products	7 (20.0)
Inability to pay staff	4 (11.4)
Limited funds for required PPE equipment	2 (5.7)
Did not encounter any barriers during COVID-19	6 (17.1)

^a Sample size varies due to missing responses.

^b Participants had the option to select more than one response option.

Table 3. Barriers to Utilization of and/or Access to Farmer-Specific Funding During COVID-19 of a Sample of Tennessee Farmers

Farmer-Specific Funding Barrier ^a	n=19 (Valid %)
Unaware of funding sources	6 (31.6)
Not meeting the application requirements	6 (31.6)
Difficulties with application process	3 (15.8)
Not needing funding at the time	3 (15.8)
Missing application deadline	1 (5.3)
No internet access to apply for funding	1 (5.3)
Other	3 (15.8)

^a Participants had the option to select more than one response option.

Table 4. Comparison of Positive Social Needs Screener Results Prior to and During COVID-19 Among a Sample of Tennessee Farmers

Social Needs Screener Item	Positive Screen Prior to COVID-19 n (Valid %)	Positive Screen During COVID-19 n (Valid %)	Difference in Positive Screen (During - Prior to COVID-19) n (Valid %)
Housing	1 (3.2)	3 (10.3)	2 (7.1)
Food Insecurity	4 (13.8)	10 (34.5)	6 (20.7)
Utilities	1 (3.4)	4 (13.8)	3 (10.4)
Child Care	2 (6.9)	8 (28.6)	6 (21.7)
Finances	5 (17.9)	12 (42.8)	7 (24.9)

Table 5. Item-Level and Overall Mean, Standard Deviation, and Range of COVID-19 Anxiety Scale Scores Among a Sample of Tennessee Farmers

COVID-19 Anxiety Scale Item	Mean (\pm SD)	Range ^a
How afraid are you of acquiring COVID-19 when going into the public?	2.7 (\pm 1.02)	1-4
How frequently are you feeling worried that you have acquired COVID-19?	3.1 (\pm 0.91)	1-4
How frequently is your sleep getting affected because of thoughts relating to COVID-19?	3.2 (\pm 0.97)	1-4
How frequently are you avoiding conversations on COVID-19 related information out of fear/anxiety?	3.3 (\pm 1.02)	1-4
How worried are you of acquiring COVID-19 when an unknown person is coming closer to you?	2.6 (\pm 1.05)	1-4
How anxious are you getting when knowing information on COVID-19?	2.8 (\pm 0.96)	1-4
How concerned are you when people cough or sneeze because of the fear that you may acquire COVID-19?	2.4 (\pm 1.05)	1-4
Overall COVID-19 Anxiety Scale Score	20.0 (\pm5.65)	10-28

^a Scale: 1=always, or extremely afraid, worried, anxious, or concerned; 4=never, or not at all afraid, worried, anxious, or concerned
 SD: Standard Deviation

address their social need gaps first may result in a more robust pandemic response that better serves other vulnerable communities. The identification of existing social need gaps, exacerbated by the pandemic, among Tennessee farmers found in this pilot study warrants larger-scale studies that explore SDH disparities among farmers across the nation.

Without these social needs in place, existing health disparities among farmers may widen, such as anxiety-related mental health issues (Reed & Claunch, 2020). Although most participants in this sample indicated pandemic-related anxiety at some level, higher levels of COVID-19-related anxiety have been noted in the general population (Twenge & Joiner, 2020). This may potentially be explained by underreporting due to perceived negative stigma accompanying mental health issues and associated treatment, as previously noted among farmers (Judd et al., 2006). With farmers already experiencing high levels of stress prior to the pandemic, it may be hard to differentiate between pandemic-related and non-pandemic-related anxiety. Moreover, farmers operating in Tennessee may not view the risks related to COVID-19 through the same lens as farmers operating in states with different political environments. Furthermore, the COVID-19 Anxiety Scale (Chandu et al., 2020) used in the study measured participant anxiety directly related to COVID-19. This instrument did not consider

stress and anxiety indirectly related to COVID-19 and, when used alone, may not provide a comprehensive assessment of the stress-related mental health status of farmers during the pandemic. In future studies, multiple instruments to measure various mental health conditions would be warranted.

Many Tennessee farmers in this sample also faced disruptions to their businesses during the pandemic. Due to limited sales outlets and restrictive COVID-19 safety measures, many participants reported shifting from traditional sales outlets like farmers markets and restaurants to direct-to-consumer and online sales, which has been noted in previous research (Gunther, 2020). Despite these barriers and shifts in their business models, nearly two-thirds of the farmers in this study indicated no change in their gross annual farm product sales from 2019 to 2020. This finding may be explained, in part, due to the resilience in local food supply chains (Thilmany et al., 2021). Increased demand in direct-to-consumer farm sales, increased use of online sales platforms, and the rise in consumer support for locally sourced products that has been noted before and during the pandemic may have provided opportunities for farmers to meet their pre-pandemic product sales (O'Hara & Low, 2016; Thilmany et al., 2021). Additional technical assistance for farmers to build upon and maximize these acquired business

adaptation strategies (e.g., expansion to online sales outlets) could promote continued farmer resilience during and beyond the pandemic.

Although the participating farmers indicated an increase in social hardships during the pandemic, similar to farmer experiences in other crises (Sutherland & Glendinning, 2008), few utilized the available financial assistance programs to bridge pandemic-related gaps. While previous challenges in the farm sector have been shown to impact the social needs of farm households (Botterill, 2007; Chang et al., 2011), many agricultural policies have not focused on these household-level needs. These historical shortcomings of farm policy to address the well-being of farm households (Becot & Inwood, 2020) may help to explain the underutilization of COVID-19 farmer relief programs in this sample. With this historical farm policy context in mind, farmers in this study may not have recognized their eligibility for the various funding opportunities, as many did not report changes in their annual product sales related to the pandemic. Moreover, participant comments such as that they “felt others needed the funding more” and that “less government involvement [would be helpful for product sales]” highlight the potential stigma associated with government funding/assistance noted previously among farming communities (Martinez-Brawley & Blundall, 1991). Due to the local political environment surrounding COVID-19, this existing stigma may have been heightened among Tennessee farmers, potentially leading to a lower uptake of the pandemic-specific financial resources.

These findings, along with a previously outlined research agenda by Becot & Inwood (2020), highlight the need for additional, larger and more representative research studies exploring the interplay between farm household social needs and the normalization and destigmatization of both farmer-specific pandemic-related relief programs and other social safety net programs and policies, as they could be effective avenues to address social needs and stress concerns among farmers.

Limitations

Although results from this study are not generalizable beyond the scope of our sample, this pilot

study has highlighted the need for larger-scale studies to better understand the impact of COVID-19 on social needs of diverse farmers. Most study participants identified as non-Hispanic/Latinx, White farmers. There may be greater gaps in social needs and financial inequities among socially disadvantaged farmers—defined by the USDA as farmers “belonging to groups that have been subject to racial or ethnic prejudice” (USDA Economic Research Service [USDA ERS], 2021a, para. 4)—that were undetectable due to underrepresentation in the sample. Although socially disadvantaged farmers make up a much smaller proportion of farmers in Tennessee and nationwide compared to farmers who have not experienced racial or ethnic prejudice (USDA National Agricultural Statistics Service [USDA NASS], 2019), this pilot will inform enhanced recruitment efforts to ensure participation of historically underrepresented farmers in larger-scale national studies to explore if COVID-19 has affected diverse groups of farmers in different ways.


This pilot study aimed to measure the impact of business-related COVID-19 relief programs on the farmer population; however, with the emphasis on household social needs, further exploration of household-related COVID-19 relief programs is needed to fully understand the broader impact of social policy on farm household social needs (Becot & Inwood, 2020). In addition, the farm typology (USDA ERS, 2021b) used to categorize farm size based on product sales was a limitation in this study. Most respondents (92.5%) were categorized as small farms (< \$350,000); therefore, in a future study inclusion of the hobby farm category (< \$10,000) will be beneficial for further comparisons within the small-farm category. Finally, although the social needs screener items aimed to distinguish between the time periods prior to and during COVID-19, these data were collected during the pandemic and may not provide the same level of accuracy as a pre- and post-survey.

Conclusion

Tennessee farmers were experiencing gaps in their social needs during COVID-19; however, many did not utilize financial assistance programs available to them. Future studies should further investigate the

dynamic interplay between farm household social needs, farm business and operations, and utilization and destigmatization of farmer-specific relief funding and other social safety net programs and policies as these may be avenues to address the social-need hardships among farmers during and beyond the pandemic.

This pilot study functions as a framework for future research. A next step is to conduct a large-scale nationwide study, including adequate representation of historically underrepresented farmers, to explore the impact of COVID-19 on social

needs among and between diverse U.S. farmers. This study will include additional instruments and items to measure mental health comprehensively and to explore the impact of other COVID-19 relief programs and other social policies on household social needs of farmers. In conclusion, as farmers are fundamental players in our local food systems, identifying ways to improve access to, and utilization and normalization of federal and state funds and programs to support the business and social needs of farmers is vital in the effort to build sustainable food systems for us all. 

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COVID-19, a changing Canadian food-security landscape, and food movements: Findings from a literature scan

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Abstract

This research brief presents results from a scan of peer-reviewed and grey literature published from March 2020 to the end of August 2021 looking at the impacts of COVID-19 on food security in Canada. The purpose of this literature scan is to look at how the national food-security landscape

has shifted due to the pandemic and to analyze what these changes mean for civil society-led food movements working on the ground to enhance food systems sustainability and equity. This brief presents key findings from the literature scan focusing on food-security policy, programming, and funding; food security for individuals, households, and vulnerable populations; and food systems. We then draw on our collective experiences as food scholars and activists to discuss the implications of these findings for food movement organizing. Here, we focus on networks, policy advocacy, and local food systems as key considerations for food movements in a changing food-security landscape.

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Keywords

Sustainable Food Systems, COVID-19, Pandemic, Canada, Food Security, Food Movements, Social Movements

Introduction

COVID-19 emerged as a pandemic in March 2020, bringing sudden and unprecedented socio-economic changes around the globe. Canada was no exception: fear of contagion and the resultant public health measures led to business closures, unemployment, food supply-chain disruptions, and pressure on the charitable food sector due to increased demands (Beland et al., 2020; Detsky & Bogoch, 2020; Larue, 2021). The rapid confluence of these impacts requires examination to assess short- and longer-term outcomes and inform policy-making processes to maximize the food security of individuals, communities, and food systems.

This research brief presents results from a scan of peer-reviewed and grey literature published from March 2020 to the end of August 2021 looking at the impacts of COVID-19 on the food-security landscape in Canada. This literature scan emerges from a community-university partnership project involving Queen's University, the University of Manitoba, and the nonprofit organization Food Matters Manitoba. The goal of this project is to examine how the pandemic has affected vulnerabilities in Manitoba's food systems and how food movements in the province can mobilize for effective and equitable food-security policy responses both now and beyond COVID-19. Our research team comprises scholars and activists who are deeply involved in food-movement organizing and committed to community-based food systems research and policy. As a first step in our collaborative project, we identified a need to look toward the broader literature from across Canada to further understand key changes in the national food-security landscape during the pandemic that could inform the community-based research we are planning in Manitoba. The main questions guiding this literature scan are how has the food-security landscape changed with COVID-19 in Canada? And how can an understanding of these shifts inform a food movement response?

In this brief, we share results from this literature scan and draw on our experiences as food sys-

tem scholars and activists to present our shared analysis of what a changing food-security landscape means for food movements working on the ground to enhance food systems sustainability and equity. By 'food movements' we are referring to the social movements that have arisen around food systems in recent decades. Food movements are a part of civil society,¹ composed of the networks of individuals, groups, and organizations mobilizing in various ways to challenge and transform the dominant industrial and market-driven food system (Andrée et al., 2019). Food movements are concerned not only with what people eat—although they do emphasize building more local or "alternative" food systems—but also with how decisions around food production, access, and distribution are made, emphasizing just and democratic processes. We refer to food movements in the plural, recognizing the diversity of initiatives and organizing strategies that these movements encompass (Andrée et al., 2019). For example, efforts toward community food security, fair trade, food sovereignty, and slow food can all be captured under the umbrella of food movements. Since the start of the pandemic, food movements have become the leading voices calling for policy responses to address the root causes of vulnerability and inequity in food systems, including poverty, systemic racism, settler-colonialism, neoliberalism, and the ecological degradation inherent to industrial methods of food production (Food Secure Canada, 2020; IPES-Food, 2020).

In what follows, we provide detail on the methods for the literature scan and present the results focusing on the categories of food-security policy, funding, and programming; food security for individuals, households, and vulnerable populations; and food systems. We synthesize key trends and shifts in each of these areas, identify opportunities for further research, and discuss the implications of these findings for food movements by focusing on opportunities for network formation, policy advocacy, and building local food systems in an evolving food-security landscape.

¹ Civil society refers to "the arena of social engagement that exists about the individual and below the state, in and through which individuals form their political identities" (Andrée et al., 2019, p. 7). It is often described as the third sector of society, alongside government and business.

Methods

Peer-reviewed literature for this scan was identified by searching the Academic Search Complete (from EBSCO) and 65 ProQuest databases on arts, economics, and science topics using a combination of these search terms: COVID-19; food security; food system; Canada. Articles in which food security was mentioned but was not a main focus were excluded. In total, 34 peer-reviewed articles were included in the scan covering the period of March 2020 to the end of August 2021. Canadian grey literature (e.g., reports, policy documents) was identified through a Google search using the terms outlined above as well as a targeted review of websites that we identified as a research team. These included federal government websites, nonprofit and charitable organizations in the food sector, and food-security research centers and think tanks. Media articles were consulted to contextualize information and fill in gaps from other sources. We recognize that there is a considerable volume of emerging research on food systems and COVID-19 in Canada that is not yet published, including that shared in webinars and conferences, and which is not captured by this scan.

Results

We present results from the literature scan in three key categories: (1) food-security policy, funding, and programming; (2) food security for individuals,

households, and vulnerable groups; and (3) food systems. Food-security policy, funding, and programming provide an overview of policy and funding responses to the pandemic from the federal government and civil society, as well as changes in emergency food programming. Food security for individuals, households, and vulnerable groups looks at food access during the pandemic, including how this was shaped by employment, income, and food-provisioning strategies. Food systems focuses on broader changes to and supports for agri-food systems and supply chains disrupted by the pandemic.

Food-Security Policy, Funding, and Programming

A number of civil society organizations (including nonprofit organizations and research centers) released policy statements in the early months of the pandemic in response to the challenges posed by COVID-19 (see Table 1). Some common policy priorities across these statements included increasing financial resources for low-income households through a basic income or “dignity dividend”; funding a national school meal program; supporting Indigenous food sovereignty; and furthering Canada’s new national food policy (Government of Canada, 2020). Of note, since these proposals came out in spring 2020, a national food policy advisory council has been established to oversee the development of this policy with a number of civil soci-

Table 1. Policy Proposals from Civil Society Organizations

Organization	Policy statement
Community Food Centres Canada (2020)	<i>Coming out on the other side: A recovery plan for food security</i> (https://cfccanada.ca/en/News-Events/Latest-News/Announcements/Coming-out-the-other-side-a-recovery-plan-for-foo)
Canadian Commission for UNESCO (2020)	<i>Now is the time to build sustainable food system resilience</i> (https://ipolitics.ca/2020/07/15/now-is-the-time-to-build-sustainable-food-system-resilience/)
Centre for Studies on Food Security (2020)	<i>Statement on COVID-19</i> (https://www.ryerson.ca/foodsecurity/about/food-security-covid19/)
Food Secure Canada (2020)	<i>Growing resilience and equity: A food policy action plan in the context of COVID-19</i> (https://foodsecurecanada.org/sites/foodsecurecanada.org/files/fsc_-_growing_resilience_equity_10_june_2020.pdf)
PROOF Food Insecurity Policy Research (Tarasuk, 2020)	<i>Food insecurity in Canada—Latest data from PROOF</i> (https://proof.utoronto.ca/resources/webinar/)

ety members. Food Secure Canada followed up on its initial policy statement one year later, calling for a “zero hunger Canada” post-pandemic (Cheng & Yasmeen, 2021).²

In terms of policy responses from the federal government,³ various initiatives were established, including some directly tied to food security and others providing broader income and financial support (see Table 2). Key food-security initiatives included the Emergency Food Security Fund and the Surplus Food Rescue Program. An additional investment was made to the existing Nutrition North Canada program. Compared to the systemic policy reforms called for among civil society organizations, much of the food-security-specific federal funding was directed toward strengthening emergency charitable food.

A number of broader programs relevant to food security were also implemented. Key among

these was the Canadian Emergency Response Benefit (CERB) introduced in March 2020 to provide income support for Canadians whose employment was disrupted by the pandemic. While not a permanent program, for a time it provided a form of basic income. Studies investigating the relationship between CERB and food security are discussed in the following section. In addition, the Indigenous Community Support Fund was established to address the immediate pandemic health needs of Indigenous communities, including food security. Lastly, a variety of supports were made available to farmers and food processors.

Finally, changes to programming occurred among emergency food providers as they adapted to public health measures (Daily Bread Food Bank, 2020; Food Banks Canada, 2020). A report by Food Banks Canada (2020) documented changes to service models including new home delivery,

Table 2. Policy Responses from the Federal Government

Food-security programs	Purpose
Emergency Food Security Fund (https://agriculture.canada.ca/en/agricultural-programs-and-services/emergency-food-security-fund)	For food banks and other food rescue organizations to meet immediate food needs. Total funding: 200 million dollars.
Surplus Food Rescue Program (https://www.canada.ca/en/agriculture-agri-food/news/2020/08/surplus-food-rescue-program.html)	To redirect surplus food towards community food organizations. Total funding: 50 million dollars.
Nutrition North Canada (https://www.nutritionnorthcanada.gc.ca/eng/1593803686454/1593803714791)	Additional funding (25 million dollars) to enhance food subsidy rates and expand the list of subsidized foods.
Income and financial support programs	Purpose
Canadian Emergency Response Benefit (CERB) (https://www.canada.ca/en/services/benefits/ei/cerb-application.html)	To provide income support to employed and self-employed individuals affected by the pandemic.
Other programs	Purpose
Indigenous Community Support Fund (https://www.sac-isc.gc.ca/eng/1585189335380/1585189357198)	To support Indigenous communities in responding to immediate health needs, including food security. Total funding: Over one billion dollars.
Financial support for farmers and food processors (https://agriculture.canada.ca/en/covid-19-financial-support-farmers-and-food-processors)	Variety of supports including wage top-ups, isolation support for temporary foreign workers, and funding to implement health and safety measures.

² Additional civil society COVID-19 resources and responses from municipal, provincial, and territorial groups in Canada have been compiled by the Food Communities Network and are available at <https://fcn-rcn.ca/key-projects-2/covid-19-responses/>

³ While provincial governments also provided food security supports, we are focusing on federal policy responses here in line with the national scope of this literature scan; research on the Manitoba provincial policy environment is ongoing separately as part of our community-based research.

take-out, drive-through, appointment, and pop-up location options. The extent to which these more flexible options may have benefits in reaching vulnerable populations now and beyond the pandemic is an area for further investigation. Food Banks Canada (2020, p. 19) also found that the pandemic encouraged food banks to “forge more extensive relationships” with cross-sector community partners to deliver these programming changes as well as to serve groups beyond their regular client base, such as school programs and social housing.

Food Security for Individuals, Households, and Vulnerable Groups

Overall, eight sources are included in this category and indicate that the pandemic has contributed to changes in income and employment, diet quality, and mental health with implications for food security. Food security is measured through the Canadian Community Health Survey (CCHS) administered by the federal government. Food insecurity was higher in May 2020 (14.6%) compared to the same time in 2017–2018 (10.5%), driven by unemployment and reduced wages (Statistics Canada, 2020c).⁴ Some groups were more vulnerable to food insecurity than others. For example, food insecurity was at least twice as common among those applying for pandemic income support (such as CERB) in spring 2020 compared to non-applicants (Men & Tarasuk, 2021). Meeting basic needs was also a particular challenge for visible minorities (Hou et al., 2020). Food insecurity was also associated with poorer mental health outcomes (Polsky & Gilmour, 2020). On a more positive note, a study on diet quality among Quebec adults measured a slight increase in healthy eating at the start of the pandemic due to greater consumption of home-cooked meals (LaMarche et al., 2021).

A need for ongoing data collection and monitoring of these trends is consistently noted across these studies and supported by this literature scan, which reveals an overall lack of research and data

on food security during the pandemic to date. Food-security data stratified by race/ethnicity for the pre-pandemic period of 2017–2018, based on analysis by the food-security research team PROOF (Tarasuk & Mitchell, 2020), indicated higher rates of food insecurity among Black and racialized households.⁵ There is an urgent need for data stratified by race/ethnicity to fully understand the impacts of the pandemic on food access for vulnerable groups. This includes a need for more information about on-reserve Indigenous communities and some northern communities that are not included in the CCHS (Statistics Canada, 2021).

Some research considered Indigenous communities as a population vulnerable to food insecurity during the pandemic, although this research was not focused on measuring food security. Two studies advocated for a social determinants of health approach to situate food security within the broader structural and health inequalities facing Indigenous communities (Richardson & Crawford, 2020; Spence et al., 2020). Levkoe et al. (2021) similarly argued that addressing Indigenous food insecurity during the pandemic must be rooted in a decolonizing framework. Cornthassel et al. (2020) looked at the everyday land and food activities Indigenous communities undertook to ensure food security. Levi and Robin (2020) further argued that public health measures (e.g., sheltering in place, social distancing, regular hand washing) cannot be followed by the many Indigenous families who lack access to clean water and live in overcrowded and substandard housing. These conditions, the result of systemic economic and social inequalities, further increase the risk of food insecurity for those already vulnerable. Understanding the extent and impact of COVID on food insecurity in BIPOC groups is a crucial area for further research.

Food Systems

Overall, research in this area reveals changes to supply chains and consumer behaviors and attitudes during the pandemic. A total of 48 sources

⁴ Data recently released by Statistics Canada indicates that food insecurity in fall 2020 was slightly lower than pre-pandemic levels, likely because pandemic income support programs were in place by this time (Polsky & Garriguet, 2022).

⁵ A similar trend is noted by Statistics Canada for the period September to December 2020 (Polsky & Garriguet, 2022).

are included in this category and broken down into more specific themes as shown in Table 3.

The majority of the research in this section is from two special issues of the *Canadian Journal of Agricultural Economics* published in spring 2020 and spring 2021. The studies in these special issues are mostly focused on sector- and commodity-specific analyses. We pull out here the broader trends from these studies as they pertain to the overall functioning of food systems during the pandemic.

While agri-food systems have experienced various changes and disruptions (described more below), most of the agricultural economics studies found that supply chains were resilient in the first 18 months of the pandemic with respect to maintaining a stable supply of food. This has been attributed in part to the Canada-U.S. border

remaining open for trade and flexibility in regulations (Arrell Food Institute & Canadian Agri-food Policy Institute, 2021). Although the food supply was stable overall, there were increases in food prices with implications for economic access to food (Charlevois et al., 2021). This overall stability in food supply to Canadians is not to discount shortages of some goods for periods of time or disruptions within certain sectors. In particular, poor working conditions and COVID-19 outbreaks in the meat-processing sector in western Canada during the first wave were well documented in national media, including the impacts on a vulnerable workforce composed of many temporary foreign workers (Dryden & Rieger, 2021; The Canadian Press, 2020). While this literature scan covers the period to the end of August 2021, it is worth noting that

Table 3. Literature Sources on Food Systems

Key themes	
Supply chains	<p><i>Agri food-system overviews:</i> Resilience: Arrell Food Institute & Canadian Agri-food Policy Institute, 2021; Hobbs, 2020, 2021 Food prices: Charlevois et al., 2021 Supply and demand: Deaton & Deaton, 2020, 2021 Labour: Larue, 2020, 2021</p> <p><i>Commodities:</i> Export markets: Barichello, 2020; Yeung & Kerr, 2021 Produce: Chenarides et al., 2021; Laplante et al., 2021; Richards & Rickard, 2020 Grains and oilseeds: Brewin, 2020; 2021 Meat: McEwan et al., 2020; 2021; Rude, 2020, 2021 Wheat: Vercammen, 2020 Dairy and poultry: Weersink et al., 2020, 2021</p> <p><i>Sectors:</i> Food retail and service: Agri-Food Analytics Lab, 2020a; Goddard, 2020, 2021 Temporary foreign workers: Falconer, 2020a, 2020b; Migrant Workers Alliance for Change, 2020 Transportation: Gray, 2020, 2021 Processing: Hailu, 2020, 2021 Production: Holland, 2020; Lawley, 2021</p>
Consumer behaviours/attitudes	<p><i>Food attitudes:</i> Food waste: Agri-Food Analytics Lab, 2020d Food literacy: Agri-Food Analytics Lab, 2021b Confidence in food industry: Agri-Food Analytics Lab, 2021c</p> <p><i>Food purchasing:</i> Agri-Food Analytics Lab, 2020b, 2020c, 2020e, 2021a; Cranfield, 2020; Statistics Canada, 2020a, 2020b</p> <p><i>Local food turn:</i> Willingness to pay: Agri-Food Analytics Lab, 2020f Home gardening: Mullins et al., 2021 Attitudes: Polasub, Beckie, Knezevic, Nielsen, & Mah, 2020 Virtual spaces: Radcliffe et al., 2021</p>

further disruptions to supply chains due to COVID-19 transport and labor challenges interfacing with severe weather in parts of the country have taken place since this time (for example, see Lorinc, 2022), and these are important trends to follow.

Some of the greatest impacts to supply chains were noted in the foodservice sector, which has been disproportionately impacted by lockdowns (Agri-food Analytics Lab, 2020a; Goddard 2020, 2021). Research indicated that small grocery stores may have greater challenges offering online sales and keeping prices low compared to large chains (Hobbs, 2020; Richards & Rickard, 2020). The situation of temporary foreign workers (TFWs) also received attention. Falconer (2020a, 2020b) documented a decline in arrivals of TFWs in spring 2020, posing challenges for farmers reliant on this workforce. TFWs were especially vulnerable during the pandemic due to crowded living conditions, limited access to healthcare, and growing employment in food processing, a sector hit hard by outbreaks (Falconer, 2020a; Migrant Workers Alliance for Change, 2020).

The remaining research in this category focused on consumer food behavior and attitudes. Data on grocery shopping indicated “stockpiling” behavior during the early months of the pandemic (Agri-Food Analytics Lab, 2020b, 2020c, 2021a; Statistics Canada, 2020a, 2020b). Another key behavior change included more online food sales (Agri-Food Analytics Lab, 2020e; Polasub et al., 2020). The role of time, income, and other socioeconomic factors in shaping food purchasing was also a key theme, with some regional differences observed across the country (Cranfield, 2020; Polasub et al., 2020).

A final key theme within consumer behavior and attitudes was a turn toward local food systems. Overall, increased awareness and heightened local food systems activity were observed. A survey six months into the pandemic found that most respondents were willing to pay more for locally grown fruits and vegetables (Agri-Food Analytics Lab, 2020f). A survey of food attitudes by Polasub et al. (2020) likewise found that consumer uncertainty about supply chains translated into high levels of support for local and regional food systems.

In terms of participation in local food activities, a national home-gardening survey found that approximately 17% of respondents gardened for the first time in 2020 (Mullins et al., 2021). A number of media articles that we consulted reinforced a turn toward local food systems, including a surge in pandemic gardening and increased demand for local food (e.g., CBC News, 2020; Cox, 2021; Tutton, 2020). While an overall turn toward local food systems is fairly well-documented, less research focused on adaptations in the structures of local food systems. An exception is Radcliffe et al. (2021), who looked at how the Yellowknife Farmers Market responded to the pandemic through the development of a virtual local food space.

Insights for Food Movements

Well before the COVID-19 pandemic began, food movements in Canada had been calling for transformative policy changes to address the root causes of food insecurity and inequities. The start of the pandemic saw a resurgence in policy statements from civil society organizations laying out how pre-existing inequities and vulnerabilities were worsened by the pandemic and calling for renewed policy actions in response. This included statements by leading national civil society organizations such as Food Secure Canada, among others, with calls for a basic income, national school meal program, and support for Indigenous food sovereignty. The engagement in policy documented in this scan supports other recent analyses demonstrating that food movements are claiming more prominent spaces in food policy and governance (Andrée et al., 2019; Clark et al., 2021; Hassanein, 2003; Holt-Giménez, 2011; Martorell & Andrée, 2018). The policy statements released by food movements in 2020 exemplify this trend, demonstrating that food movements are increasingly concerned not only with what people eat but how decisions about food systems are made, and especially ensuring that structures are in place that support those most vulnerable (James et al., 2021). Research and data on food insecurity, as reviewed in this scan, indicate that racialized households and those relying on social assistance as a main source of income are more likely to experience food insecurity, while

temporary workers (who are more likely to be racialized) in supply chains also face special vulnerabilities during the pandemic. Ongoing data collection and monitoring of food security and related health indicators are crucial to informing the efforts of food movement organizations on the ground responding to food needs and advocating for policy supports.

Realizing the transformative policy changes that food movements seek will require collaboration and engagement between food movements (civil society organizations, the charitable sector, grassroots groups, local producers) and other sectors. Here, findings from this literature scan offer insight into the potential for network formation. As Clark et al. (2021) discuss, a unique ability of food movements is to “convene” different actors in pursuit of shared food system goals. A notable finding from this scan is that food banks have developed new and strengthened relationships with other community agencies, governments, and local businesses since the start of the pandemic to adjust their programming and enhance efforts to reach vulnerable communities (Food Banks Canada, 2020), as described in the policy, programming, and funding section of this scan. Our experiences in community food systems work in Manitoba supports this finding; for example, we have observed charitable food organizations engaging more with food-security advocacy and research organizations around how to build food-security policy supports. These new collaborations within food movements (e.g., between charitable and advocacy organizations) and across food movements, government, and local business offer promise for forming the networks that may enable collective action for food systems policy change post-pandemic. In our community-based research in Manitoba, this is a key area we plan to examine more closely by bringing together diverse food-security stakeholders through a participatory process to examine what resources and tools may contribute to further building and sustaining these networks in support of policy change and advocacy.

Also related to networks, another trend this literature scan speaks to are the new relationships between the government and charitable food organizations that formed as the federal govern-

ment began directly funding or transferring surplus food to these organizations (primarily food banks), as shown in the review of policy, programming, and funding included in this scan. Historically, this did not happen, as food banks are not deemed a formal part of the social welfare system in Canada. This change has become a point of tension: while charitable organizations need resources, many of these organizations—along with food-security advocates—do not want these organizations ‘legitimized’ for risk of curtailing the government’s responsibilities in upholding the right to food and other social supports such as an adequate income. The ways in which food movements’ relationships with government may be evolving due to the pandemic, and particularly vis-à-vis funding arrangements, is an area that warrants ongoing attention.


In addition to insights for network formation and policy, we can also identify from this scan some key considerations for local food systems that are relevant to food movements concerned with building alternatives to the dominant food system. Overall, this scan observed a turn toward more local food systems. However, more research is needed to understand the opportunities (or limitations) of virtual marketplaces in connecting producers and consumers and for potentially scaling up these networks. There is also a need for more research to assess how different groups, and especially more vulnerable households, may be experiencing a resurgence of local food activity, such as home gardening or access to local and regional food options. This is crucial given the critiques of local food initiatives for catering to white, middle-class consumers (e.g., DeLind, 2011); previous research indicates that low-income households value local food, but income and cost are constraints to access, as well as food environments and trust in the food system (Kramer et al., 2019). Food movements, and especially those in the areas of community food security and food justice, have been vocal in raising concerns that local food alternatives risk perpetuating the race- and class-based inequities that characterize the mainstream food system (Alkon & Agyeman, 2011).

Notably, we did not find research focused specifically on small-scale farmers or fishers. Research

in this area will be important to understanding sustainable livelihoods for small-scale food providers and providing a more integrated picture of the development of local food systems now and post-pandemic. Some studies noted that small retailers may have a hard time competing with large chains to keep prices low during a time of income uncertainty for consumers. More research is needed to understand the experiences of small and independent retailers during the pandemic; this could be an important question for food movements to follow, particularly as the food retail industry is already highly consolidated, and food movements, especially farmers' associations, union, and rural development allies, have been a strong force speaking out against further concentration of power in the sector (IPES-Food & ETC Group, 2021).

In conclusion, the pandemic food-security landscape represents a dynamic moment for food movements in Canada. The vulnerabilities and inequities in the dominant food system revealed by the pandemic have reinforced the importance that

food movements were placing on these issues well before COVID-19 and which they continue to raise. The pandemic food-security landscape highlights the potential and heightened importance for food movements to further convene diverse actors—both within food movements and with other sectors—to collectively respond to the challenges facing Canada's food systems (Clark et al., 2021). A turn toward local food systems during the pandemic may offer heightened opportunities for awareness and action on some of the causes and issues that food movements champion. Now and post-pandemic, we believe that the formation of new networks spanning food movements and other sectors, the associated opportunities for policy change and advocacy, as well as the ways in which renewed interest in local food systems may play into food movements' aims and ambitions will be important considerations for food movements, their allies, and food systems scholars and practitioners to follow.



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Adaptive capacity in emergency food distribution: Pandemic pivots and possibilities for resilient communities in Colorado

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Abstract

The unprecedented circumstances of the COVID-19 pandemic have revealed weaknesses in our emergency food distribution programs and also highlighted the importance of the adaptive capacity that is actively fostered within such programs. Community-based food distribution programs have faced an increased reliance on their services due to record-breaking food insecurity since March 2020. Concurrently, these emergency food distribution programs have had to deal with the logistical challenges of operating their programs during a pandemic. How are they adapting, and which existing organizational assets have they been able to draw from and/or strengthen? Based on in-depth qualitative research with emergency food distribution

programs in Boulder and Denver, Colorado, this paper analyzes how their operational responses to the COVID-19 crisis both demonstrate and reinforce adaptive capacities. By drawing from collective resources, leveraging the efficiency of their flexible and decentralized structures, and networking across organizations, the programs in our study took advantage of existing organizational assets. At the same time, we argue that by overcoming logistical and practical barriers to address emerging food insecurity needs, they simultaneously deepened their adaptive capacities to respond to ongoing and future crises.

Keywords

Community Resilience, Adaptive Capacity, Food Systems, Local, COVID-19, Pandemic, Emergency Food Programs, Food Banks, Food Pantries, Colorado

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Introduction

By and large, people were just really great and supportive and we had an explosion of new volunteers, and that really helped. We had support and the community was really receptive . . . but at the same time, a lot more people are experiencing food insecurity because of the pandemic. (Cameron,¹ representative from a food justice nonprofit)

Hopefully once we get past this, it won't be like it's been, for instance, with Victory Gardens. As soon as we were past the Second World War, everybody said we're not doing that anymore, and gardening fell by the wayside. Hopefully this won't just be a passing fancy and more and more people will support local food. (Lori, representative from an urban gardening organization)

Disruptions created by the global COVID-19 pandemic have highlighted the fragility of conventional food pathways in the United States, specifically in terms of their ability to respond (Benton, 2020; Raja, 2020). Since the pandemic upended daily life in March 2020, countless media outlets have visually captured food (in)security and the (in)ability of American food systems to address growing food insecurity. Photographs document long rows of cars in packed parking lots, filled with people waiting in food bank lines to receive food assistance (O'Rourke et al., 2020; *Reuters*, 2020; Van Pykeren, 2020). While these images point to a rise in food insecurity during the pandemic, they also raise questions about the (in)efficiencies of emergency food distribution—including the slow speed, lack of choice in food items, and challenges of providing “free food” with dignity. In many ways, such questions and critiques of emergency food programs' response to persistent food insecurity are not new (Bruckner, Westbrook et al., 2021; de Souza, 2019; Poppendieck, 1999). Nonetheless, COVID-19 has accelerated the already alarming rate of hunger, with estimates suggesting that over 45 million

Americans were food insecure in 2020 (Feeding America, 2020). At the same time, as quoted above, emergency food distribution programs faced not only challenges but also opportunities by welcoming an influx of volunteers who were inspired to action by the pandemic. What is clear is that COVID-19 shocked existing emergency food distribution networks, raising important questions as to the operational resilience of food distribution programs.

Where U.S. government relief money has been made available, it has been funneled primarily to large food banks and food pantries (Orden, 2020). However, many community food security programs outside the food banking model build grocery distribution into their programs and also serve a vital function in redistributing food. Often overlooked, or dismissed as a temporary or insignificant components to address hunger, these types of food assistance programs have become a central and consistent source of food provisioning to millions of Americans on a regular, long-term basis (Lambie-Mumford & Dowler, 2015; Tarasuk & Eakin 2003, Warshawsky, 2010). While sometimes referred to as “charitable” food assistance, in this paper we characterize these programs as “emergency” to reflect the urgency inherent in an ongoing crisis of food insecurity (Bruckner, Westbrook et al., 2021). Through the present research, we examine how diverse community-based emergency food distribution programs have demonstrated their ability to respond to fluctuations in food need. We argue that the programs in our study draw from, and in the process strengthen, adaptive capacities that are key to community resilience. In this paper, we direct our attention to five community-based emergency food distribution programs in the Colorado Front Range and their dynamic responses during the first 18 months of the COVID-19 pandemic.

While some anecdotal evidence points to an uptick in local food system participation in the pandemic through, for example, home gardening or support of community supported agriculture (CSA) (Local and Regional Food Systems Response to Covid, n.d.), few scholars have

¹ To protect the privacy of individuals, we have assigned pseudonyms to all our interviewees.

devoted analytic attention to unpacking the characteristics of specifically *emergency* food distribution programs that foster or inhibit resilience. Drawing from community resilience literature, we closely examine how latent adaptive capacities in community-based food distribution programs were activated and deepened the way food distribution programs responded to pandemic circumstances. We argue that the logistical and operational challenges in pandemic food distribution highlight the cyclical and reinforcing nature of adaptive capacities within organizational structures. While community resilience literature has theorized about organizational capital and institutional structures that foster resilience, attention to how these features influence community resilience within emergency food distribution programs has been missing. To this end, the following research sets out to (a) understand how features of community resilience apply to emergency food distribution programs, (b) gather qualitative data on how specific emergency food distribution programs adapted their operations to pandemic conditions, and (c) reflect on what their responses may mean for building community resilience within emergency food programs going forward.

In this paper, we first review concepts of community resilience and related understandings of adaptive capacity, linking these features explicitly to their implications for emergency food distribution. We then briefly discuss the impact of COVID-19 on food distribution in terms of national government response and impacts, before situating our qualitative research with five community-based emergency food distribution programs in Denver and Boulder, Colorado. Through unpacking specific programs' ability to adapt to and address community needs, we shed light on how each of the programs successfully mobilized collective resources within and across organizations and drew from the strength of their flexible and decentralized operations. We argue that disruptions like the COVID-19 pandemic may provide opportunities for more inclusive, socially just, and responsive emergency food distribution operations if, and when, disruptions foster social learning.

Resilience and Adaptive Capacity in Emergency Food Distribution

Community Resilience and Adaptive Capacity

The impacts of COVID-19 have illuminated the fragility of national and global food systems, encouraging us to consider the adaptability of current food networks to major social-ecological and economic shocks. Shocks and disruptions, however, are increasingly considered part of the new normal, as the impacts of climate change on food systems, for example, gain popular and academic attention (Mayer, 2016). How food systems respond, adapt, or even transform in light of shocks can speak to their overall system resilience (Tendall et al., 2015). While resilience literature has been applied to food systems, the implications for emergency food distribution programs are less well-developed—and this is where we situate our paper. We briefly review contributions from social-ecological and community resilience perspectives and highlight adaptive capacities that have been identified as part of resilient food systems, before connecting this literature to emergency food distribution programs.

Holling (1973) notably conceptualized resilience as a term to describe ecological systems and their response to shocks, including how nonequilibrium natural systems respond to disruptions by bouncing back (returning to normal functioning), or by collapsing. Challenging the ecological balance framework of the time, Holling (1973) emphasized change as an inherent dynamic in ecological systems. Throughout the past 20 years, however, scholarship has increasingly addressed resilience as part of the social sciences, as social-ecological resilience is always entangled (Adger, 2000). Adaptive capacity, or the ability to respond to and learn from dynamic conditions, is a key feature in resilience (Magis, 2010). Whereas systems with low adaptive capacity are more vulnerable to shocks and changes to begin with (Adger, 2006), systems with high adaptive capacity build resilience (Walker et al., 2004).

Research on community resilience seeks to understand how communities can develop and engage with their existing capacities to respond to uncertainty (Magis, 2010). Scholars point out that com-

munity capacities like social support and social networks, preparedness, knowledge sharing, and physical infrastructure are critical features of resilient systems (Berkes & Ross, 2013; Harden et al., 2021; Magis, 2010; Norris et al., 2008). While some community-based programs and systems can be socially and environmentally oriented and resilient, Born and Purcell (2006) caution against romanticizing the community scale as *inherently* so just because it is “local.” Furthermore, other scholars acknowledge that “community” can be a problematic scale when conceptualized as a unified entity or representative of all within that community (Agrawal & Gibson, 1999). Nevertheless, we welcome contributions to the community resilience literature that focus on place-based relationships, social networks, and the sharing of knowledge and skills as key aspects that may foster adaptive capacities (Berkes & Ross, 2013; Magis, 2010), while at the same time critically examining these community capacities as they emerge in practice.

Berkes and Ross (2013) point out that adaptive capacity in community development processes might be actively cultivated through participatory projects that build trust and work toward tangible outcomes, even in noncrisis times (p. 16). Magis notes the cyclical nature of drawing from and building future adaptive capacities when faced with waves of disruption: “in a self-reinforcing cycle, the engagement of community resources towards community objectives addresses the presenting issue and can develop community’s resilience which then can generate adaptive capacity to both sustain and adapt in response to disturbance and change” (Magis, 2010, p. 405). In these frameworks, community resilience is strengthened by cultivating adaptive capacities that are responsive to social learning through participatory processes. We now turn our attention to how these adaptive capacities relate to emergency food distribution.

Resilience of Emergency Food Distribution

At the intersection of community resilience literature and our focus on emergency food distribution lies the goal of community food security, defined as “a condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system

that maximizes community self-reliance and social justice” (Hamm & Bellows, 2003, p. 37). Food justice scholars conceptualize food access as a key feature of community food security (Alkon & Ageyman, 2011). However, food justice scholars and activists diverge in where emergency food distribution fits into community food security and into an overall resilient food system.

For some, food justice is distinct from emergency food distribution because justice is concerned with the redistribution of power within the management and control of food, including the factors which lead to food insecurity in the first place (Alkon & Ageyman, 2011; Anderson, 2018). Several academics and activists foreground the myriad of underlying structural causes of food insecurity in the U.S., including the capitalist political economy of food that leads to inequitable access (Guthman, 2011; Schlosser, 2012); structural racism (Penniman, 2018); and the spatial distribution of food retail that limits affordable and nutritious food options (Guptill et al., 2017), disproportionately affecting BIPOC communities (Raja, 2020). While emergency food distribution can address food access, many food justice proponents argue it can do little to address the root causes of systemic hunger (Poppendieck, 1994, 1999; Tarasuk & Eaton, 2003).

Resilience in itself is a neutral term (Walker & Salt, 2012), and undesirable states, like those which cause systemic hunger, can be persistent and hard to change. While “undesirable states of systems can be very resilient” (Walker & Salt, 2012, p. 20), recent work on local food system resilience and food distribution posits resilience as inherently positive (Azizi Fardkhales & Lincoln, 2021). Azizi Fardkhales and Lincoln point to “functional redundancy” (2021, p. 53) of existing distribution in a food system as a mechanism to encourage resilience. However, our understanding of resilience differs in that sometimes the “basic functioning” (Pingali et al., 2005) of systems, including the systems that produce hunger and emergency food distribution as a response, may be problematic to begin with. Thus, while resilience implies the continuity of basic functioning, we must still ask whom the system provides benefits (Cretney, 2014) and how or if social learning and

growth are actively promoted in program design.

Recent interventions related to emergency food distribution programs highlight the complexities and nuances of “free food.” The literature on this research emphasizes the possibilities and insights we can gain from examining emergency food distribution programs as a set of dynamic social relationships—including the potential for programs to challenge the hierarchical relationships and stigma around food assistance, while serving as a space for social networks of care (Bruckner, Westbrook et al., 2021; Cloke et al., 2016; de Souza, 2019; Heynen, 2009). We acknowledge the diversity of programs that distribute emergency food, from food banks to food pantries, to food waste redistribution nonprofits and community gardens devoted to donating the bulk of their harvested produce. However, our analysis centers not only on the type of food distribution program, but how it operates in practice. While some models of emergency food distribution may reinforce hierarchical dynamics of feeding “the Other” (de Souza, 2019), other structures of mutual aid or horizontal food redistribution may contribute to building community networks of solidarity or social support—key aspects of community resilience identified by Berkes and Ross (2013) above.

Although system resilience literature specifically focused on emergency food distribution is limited, food system resilience broadly can be defined as the “capacity over time of a food system and its units at multiple levels to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances” (Tendall et al., 2015, p. 19). We conceptualize community food security through emergency food distribution as one of these levels building toward food system resilience. Pingali et al. (2005) recommend diversifying food systems more broadly to improve resilience and expand food access. They highlight food system resilience that builds adaptive capacities of community resources and democratic forms of management, and actively dismantles socio-economic barriers to food (Pingali et al., 2005). Vitiello, Grisso, Whiteside, and Fischman (2015) focus on the multifaceted roles that community-based actors (local gardeners, farmers, and food justice advocates) are playing in community

food system development. We consider emergency food distribution programs as key components of community food systems, though they are understudied in discussions about food system resilience.

At the federal level, there are various food assistance programs that operate as a “non-crisis” social safety net to distribute food, such as the Supplemental Nutrition Assistance Program (SNAP), the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), the Disaster Household Distribution, the Emergency Food Assistance Program, and Commodity Supplemental Food Program (U.S. Department of Agriculture, n.d.). In response to the rising joblessness and food insecurity spurred by pandemic closures and illness, the U.S. government passed the Coronavirus Aid, Relief, and Economic Security Act (CARES) and the Families First Coronavirus Response Act (FFCRA). Through these acts, the government released US\$2 trillion funds in April 2020, of which US\$850 million were allocated for food banks and pantries (USDA, 2020). However, the *Washington Post* reported that as of June 2020, food banks had only received US\$300 million (Werner, 2020). Feeding America, the largest nationwide network of food banks, noted that the pace of federal emergency funding was too slow for urgent demand and established a US\$2.65 million COVID-19 Response Fund to cover food access and distribution shortfalls caused by the pandemic (Feeding America, 2020). Further efforts to invest in emergency food distribution, through the USDA’s US\$4 billion dollar “food box” initiative, have been criticized for inefficiency, high cost, and logistical shortfalls (Charles, 2020).

While the federal assistance during the pandemic has focused on large food banks and pantries, the creativity and operational shifts in diverse emergency food distribution programs are a critical piece of community food security. What does resilience in community-based emergency food distribution programs look like, and how can we use the pandemic to understand the challenges they faced? Acknowledging the ongoing nature of the COVID-19 pandemic, we begin to identify the adaptive capacities of emergency food distribution programs that have been drawn from and strengthened through this crisis.

Study Context and Methods

Our Approach

Cote and Nightingale (2012) forward “situated resilience” as a concept to help ground definitions of resilience and adaptive capacities. Arguing that scholars should look toward specific dynamics of places and systems to inform what leads to definitions of resilience—as opposed to imposing abstract metrics—Cote and Nightingale’s situated resilience guides our inductive approach. We began our study of situated resilience by reaching out to five emergency food distribution programs with which we had previous existing relationships (as volunteers and as academic collaborators). One of us, an undergraduate student at the University of Colorado Boulder at the time, developed an independent study with the other author, her academic supervisor, to formalize a research project based on the pandemic’s impact on emergency food distribution. We co-designed research focused on qualitative analysis with these five hunger relief and emergency food distribution programs in our vicinity of Boulder and Denver, Colorado. Before detailing our methodology, we provide a brief context of food systems in Boulder and Denver.

Study Area

The Front Range in Colorado is a flatland area at the base of the Rocky Mountains, which includes the metropolitan areas of Boulder and Denver (about 25 miles apart). While different in size and composition, both cities maintain a “green” reputation for prioritizing open space, sustainable development, and progressive politics, and the proliferation of “alternative food,” ranging from community supported agriculture operations (CSAs) to thriving farmers markets (Hickcox, 2018). Agriculture has been a staple of Colorado’s economy, and the majority of production is located along the Front Range region (Graff et al., 2014). While Boulder and Denver are different in many ways, their communities are connected by proximity, and there are many residents who live in one city and commute to the other (Boulder Daily Camera, 2019). According to a 2016 commute analysis, “slightly more than 50% of Boulder County jobs in the two lowest income brackets are

held by people who live in other counties” (Nelson\Nygaard Consulting Associates, Inc., 2016, p. 1), and Denver is home to the most low-income commuters who work in Boulder. Yet, despite the affluence of Boulder and Denver and the agricultural productivity of the region, both cities still face persistent challenges with food insecurity, which was worsened by the COVID-19 pandemic (Bruckner, Castro-Campos et al., 2021; Hunger Free Colorado, n.d).

Boulder is a small city of about 100,000 residents and consistently ranks as the best “metro area” to live in (U.S. News & World Report, 2021) and one of the “greenest cities for families” in the U.S. (Wallace, 2016). However, the high quality of life comes at a price; the median Boulder home value increased to US\$1.5 million in 2020 (Wood, 2021). For unhoused residents, Boulder can be a less welcoming place, with a “camping ban” criminalizing the unhoused, and often food insecure, residents (ACLU Colorado, 2021; Eastman, 2021; Swearingen, 2021). Thus, economic, racial, and social exclusion form less visible components of Boulder’s high quality of life and environmental policies (Hickcox, 2018). Boulder has a sizable population of residents who experience chronic food insecurity, estimated at about 11% of Boulder County residents in 2020 (Bruckner, Castro-Campos et al., 2021).

Denver is an urban area with approximately 700,000 residents in the city center and almost 3,000,000 in the greater metropolitan area in 2020 (Metro Denver EDC, n.d.). Like Boulder, Denver is attractive to many for its appeal to young, progressive, and eco-minded residents; however, the influx of young urbanites has led to rising housing costs and inequitable urban transitions through gentrification (Sbicca, 2020). Denver County’s food insecurity rate in 2018 was 11%, with 76,340 reporting food insecurity (Feeding America, 2018). In 2016, 49% of low-to-moderate-income Denver neighborhoods lacked convenient access to grocery stores and culturally appropriate options (Angelo & Goldstein, 2016; Breger Bush, 2021).

Even though Colorado’s food insecurity rate decreased in fall 2020 (City and County of Denver, n.d.), the rate of food security increased from 11% food insecurity rate to 33% over the course of the

pandemic (Hunger Free Colorado, n.d.; Roy, 2021). Prominent food banks in Denver documented dramatic upticks in need, for example from feeding 450 families a month to 2,000 (Roy, 2021). Additionally, the state economy and small farms and businesses reported “a [US]\$3.9 million decline in sales ... [and] a total loss to the economy of up to [US]\$6.7 million from March to May 2020” (Thilmany et al., 2020, p. 1). Despite the wealth and popularity of Boulder and Denver, or perhaps because of it, food insecurity is often excluded from discussions about the livability on the Front Range (Bruckner, Castro-Campos et al., 2021), but it has come into the spotlight through COVID-19 (Langford, 2020; Singer, 2021).

Methods

The qualitative research for this project centers on semi-structured interviews (Kvale, 1996) with upper-level organizational representatives from five food projects in Boulder and Denver. While the types of emergency food distribution models vary (as we sketch out below), they all position themselves as community-rooted programs in the Front Range that prioritize environmental and social sustainability and food as a right for all. We first sent out recruitment emails to representatives of over 20 food distribution programs in Boulder and Denver. Ultimately, however, the response rate from recruitment emails was low, likely due to the increased stress and workload of pandemic food distribution. We then used convenience sampling (Morgan, 2008) to reach out to our existing contacts at Boulder Food Rescue and Harvest of Hope, with whom we had previously collaborated (with research) and as volunteers. These representatives connected us to other food distribution program employees through snowball sampling (Morgan, 2008). All five representatives we interviewed held upper-level management positions in their respective programs, as we detail in the project descriptions below.

We conducted two rounds of semi-structured interviews with each of the five program representatives (one per program), first in September and October 2020, and then again in July 2021. In the first round of interviews, we centered our questions on (a) how the pandemic had impacted their

program, and (b) what changes the programs had instituted in response to these challenges. In the second round of interviews, we asked for (a) updates to their practices, and (b) their outlook on what changes instituted during the pandemic will persist moving forward. Due to health concerns during the pandemic, all interviews were conducted via Zoom in our respective remote locations. Each remote interview lasted between 45 and 60 minutes and was audiorecorded and transcribed. Both authors then used Taguette, an open-source qualitative data analysis software, to conduct a content analysis (Weston et al., 2001). We categorized participant responses into thematic areas of what types of changes were enacted in terms of operations, how these changes were enacted, remaining challenges, and opportunities for their future ability to withstand shocks. We conducted this project with approval from the Institutional Review Board (IRB) at the University of Colorado Boulder.

Before detailing our findings, we present a brief overview of each of the community-based emergency food distribution programs we included in this study.

Community-Based Emergency Food Distribution Programs

Harvest of Hope Pantry is a community food pantry located in Boulder. Its goals include providing sustainable and nutritious food and creating a safe, judgment-free space for food access and redistribution. Harvest of Hope Pantry has a low barrier to entry, with no income qualifications, and it recognizes that food insecurity can come in many forms. Its model for food redistribution is a dignity-centered, client-choice model, allowing people to choose the foods for themselves. The pantry receives the majority of its operational funding from individual donors (Harvest of Hope, n.d.). We interviewed Daniel, a project coordinator, at Harvest of Hope.

So All May Eat Café (SAME Café) is a pay-what-you-can café located in downtown Denver that seeks to provide healthy meals, a varied menu, and food to people in the community experiencing food insecurity. The café receives 90% of its pro-

duce as donations from local farms and gardens, and partners with Food Bank of the Rockies, Denver Botanic Gardens, Altius Farms, Denver Urban Gardens, Grow Local Colorado, and others for food donations. The café is either the primary or only source of nutrition for its guests, as 83% of guests live below the poverty line. Like Harvest of Hope pantry, the café addresses socio-economic barriers and the stigmatization of food access through food-choice models. SAME Café relies on donations from the community, its volunteer force, and state and federal funding. For this research, we spoke with Jeff, the executive director of SAME Café.

Grow Local Colorado is a volunteer-powered network of urban gardens in the greater Denver area that is working to produce food locally, engage the community, and contribute to the local economy (Grow Local Colorado, n.d.). It seeks to expand urban gardening, and in doing so increase areas of fertile soil and productivity. Grow Local is a major produce donor to Front Range organizations and food pantries (Grow Local Colorado, n.d.). We interviewed Julia, a program manager of Grow Local.

Denver Urban Gardens (DUG) is a nonprofit organization that supports community gardens; provides a gardening resource for educators, leaders, and community members; and serves as a major produce donor to local schools and community groups. DUG is a coalition of over 181 community gardens throughout Metro Denver with volunteer leaders sharing leadership and management of the various gardens. We interviewed Lori, a program coordinator at DUG.

Boulder Food Rescue (BFR) is a locally run food redistribution nonprofit in Boulder. The organization is focused on reducing food waste from local food businesses and grocery stores and redistributing food and power to community members, community centers, and low-income populations. Volunteers and staff transport food mostly by bicycle, reducing their carbon footprint as a part of their sustainability mission. The data for this research center on our interviews with Cameron, a

program advisor at BFR.

While we recognize their diversity, ranging from food distribution to food production, each of the above emergency food distribution programs prioritizes food access for all and is deeply rooted in community. From our data, three key components emerged as central to the programs' adaptive capacity, within emergency food distribution programs, which were then strengthened: (1) the ability to mobilize collective resources in organizations and communities; (2) having decentralized and flexible structures, which allowed them to respond quickly to a dynamic situation; and (3) networking across organizations to form new strategic partnerships. We detail each of these findings below, along with the challenges that remain.

Findings

Mobilizing Collective Resources in Organizations and Communities

As businesses shut down, as millions of Americans lost income from missed wages, and as the health and economic shock of COVID-19 began to set in during March 2020, food distribution sites rapidly experienced a spike in demand for food assistance. The resulting logistical challenges required the programs we investigated to respond quickly to the rise in need, as well as adeptly navigate shifting health circumstances. From working long hours, to preparing to-go meals, to fundraising and finding volunteers, to serving more people, community-based emergency food distribution programs mobilized their existing resources. In the process of enrolling community resources of volunteer staff and financial donations, all five representatives we interviewed mentioned both the increased need for volunteer staff as well as the community-building that occurred through this process of volunteer mobilization.

[The increase in clients] was the first impact. We have to feed these people, which is great. And we did. And then everyone was working crazy hours and then we ... [had] to raise money to offset this. I was able to work with our fundraising team, and we were able to raise a lot of money. So, the community then joined

in and said, yes, we see that you're doing good. So many of our biggest funders reached out to us and said ... "We assume you're really impacted by this. Do you need extra money? Because we can help." And a lot of them gave extra. (Jeff at SAME Café)

As described by Jeff, after the initial shock of closures in March 2020, emergency food distribution sites had to build responses to these increased demands into their programs, as opposed to just "working crazy hours." How they were able to respond so successfully, according to Jeff at Same Café, is due directly to "the community joining in." The emergency food distribution program representatives understood the increase in volunteerism as directly correlated to a sense of hopelessness of many during the pandemic—including activating a sense of volunteerism in those who wanted to help.

People want to make a difference because everyone's seeing those images of mile-long lines of people waiting to get food at food pantries. And people just were excited to be outside with other people. (Julia of Grow Local)

Grow Local also dramatically increased the amount of produce it harvested and donated, from about 300 pounds to 1,100 pounds in a year. These donations were greatly needed because of supply chain disruptions and increased demand: "The food pantries that we partner with—almost every single one of them—[had] said we need more produce; and many of them, for the first time, we were their only source of fresh produce" (Julia of Grow Local).

To cover funding shortfalls, Grow Local acquired gardening supplies through its citywide network of partners, community gardens, and volunteers. It attributed the prolific harvest to the surge in volunteer interest of urban gardeners and growers who felt affected and wanted to make a difference: "It's amazing ... no one walked in our gardens. No one vandalized them. No one picked anything. It just shows you that people understand what that's all about" (Julia from Grow Local).

In addition to an influx of volunteer aid, pro-

grams quickly mobilized other external resources from local partnerships when the circumstances threatened their ability to serve their clients. Similar to what other representatives echoed, BFR, which relies on excess produce from grocery stores, experienced low donations when community need spiked. Cameron explained how they shared food and financial resources with Denver Food Rescue and even enlisted volunteers to pick up produce from Denver when the partner organization had extra supplies. By rapidly arranging to share resources, both organizations made logistical changes without slowing their essential operations.

Aside from the practical benefits of increased produce and greater amounts of food distributed successfully, the representatives interviewed also highlighted that through mobilizing volunteers, the program participants cultivated a sense of community and investment. Lori with DUG described how the act of sharing, growing, and working together around food was critical for building community. At a time when so many were struggling not only with food insecurity, but also anxiety and loneliness, Lori drew attention to the role that community gardens play for societal well-being:

We know from ... our 35 years and operations that gardening is essential. It's an essential resource for food production. With strain on the food system, as well as the strain on our mental and emotional health, community gardens had to stay open. So it was a lot of work and most of our partners agreed; the garden had to stay open.

Lori also discussed the economic benefits and community-strengthening opportunities of DUG gardens: "environmentally, economically and socially, a garden is a great idea. ... It's a great way to build community."

Yet, while in the early months of the pandemic these emergency food distribution programs could rally volunteers and funding, representatives were cautious about what an ongoing pandemic would mean for their volunteer labor force and economic future. Several interviewees spoke about their fears of "disaster philanthropy." This term refers to the

bursts of interest and energy for funding and resources stemming from a disaster (like COVID-19), but also the reactive and short-lived type of philanthropy. While some of the programs (BFR, SAME Café) received federal financial assistance through the Paycheck Protection Program, all programs related in their interviews that they relied heavily on philanthropy from individual and community foundation donations. Harvest of Hope's coordinator, Daniel, voiced concern about the public mentality surrounding disasters that they will resolve on their own, as he urged people to remember that they are going to need this support for a long time: "People talk about, 'when this is over,' and it scares me to think that it might not be, it might be something we live with."

While individual volunteer aid increased initially, the sustainability of organizations' human resources and volunteer support fluctuated in the months following the pandemic onset. Both Julia of Grow Local and Daniel from Harvest of Hope expressed anxiety over the unpredictability of support:

We have good resources, and we are in Boulder—it's a very high-resource area—the volunteers are coming in. The most difficult part is the planning because everything changes day to day. (Daniel)

In follow-up interviews we conducted in July 2021, program representatives were pleasantly surprised to note that volunteer numbers had not dropped off (at least not yet). Instead, Julia from Grow Local remarked that because of the bonds and connections formed at the height of the pandemic, volunteer numbers remain strong as people "want to help ... and they want to socialize." How and if this volunteer support continues, however, is uncertain, and the inability to plan is a challenge voiced by many. While community support was mobilized and strengthened, the pandemic has also severely threatened the economic viability of these emergency food distribution programs. Many were able to receive private donations in the forms of money, food, and supplies, but expressed concern over the precarity of funding for essential food operations moving forward.

Decentralized and Flexible Operations

Emergency food distribution programs in Boulder and Denver quickly adapted their operations to respond to increased food needs. The decentralized and flexible nature of their food production and distribution models and close relationship with their communities allowed them to utilize vacant growing space, increase produce supply, implement safety measures to continue serving food, and move to decentralized distribution. However, there were some tradeoffs and challenges as local food projects pivoted their logistical operations, as the BFR quote below highlights:

We all are dealing with this big increased need. So after the pandemic set in a little bit ... what makes sense is to get as many shelf-stable foods to people as you can as quickly as you can. Short-shelf-life produce really just kind of gums up the works, with COVID-19 restrictions at pantries, unfortunately, because people really want and need it. But it needs to get out to people really fast. And that can be ... a logistical challenge. (Cameron at BFR)

In terms of client choice, for example, Jeff described how SAME Café had to change its normal operations to meet safety protocols. Like most restaurants, safety precautions consisted of reducing capacity, installing physical barriers between staff and clients, and shifting to take-out or other ways of serving food with minimal contact. In particular, SAME Café transitioned to new services of to-go meals, in which clients were unable to select all the food items they wanted. The changes affected its mission of promoting food choice, but as a response to the increasing need, SAME Café found this compromise acceptable. The switch led to additional challenges which it had to adapt to, like increased costs:

What we did was switch immediately to-go and [we] started seeing about double the number of people showing up at our restaurant and getting food ... because the need increased so much. Now, we did that for a couple of weeks. And we were like ... this is so much more expensive because we're giving out so much

more food. But then we're also giving out to-go containers, which normally we use plates that we were washing. I stepped back from being there to hand out food and said, I have to raise money to make this happen. We started talking about our mission and what we were doing kind of publicly and loudly on social media ... sharing what we've been doing. (Jeff)

The Harvest of Hope pantry instituted *Your Choice*, a modified, COVID-19-safe model. *Your Choice* integrated a new volunteer force as runners, who would take orders (off a menu with food choices available for that day) and deliver the food to people waiting in their cars. During the period of highest demand, however, Harvest of Hope combined prepared food boxes with the choice menu to most efficiently serve people.

Client choice is very important to allowing people to choose the foods that they need for themselves, nutritionally and culturally ... and it also gives people a measure of dignity to be allowed to select the foods that they need for themselves. When the pandemic hit and we couldn't let people inside ... we said, now we had to dump elements of the choice system, and just give people a box of food. (Daniel)

This flexibility in approach allowed for food boxes with some degree of client choice, such as vegan and vegetarian options, while still adhering to health and safety guidelines and responding to the need for greater efficiency.

Despite some tradeoffs and adaptations regarding food choice, Cameron of BFR highlighted its No-Cost Grocery Programs (NCGP) as effective during this time due to their decentralized nature. The NCGPs distribute food at community centers of affordable housing sites and at schools and are run by residents themselves. BFR brings redistributed food to these sites that operate on a small scale:

They run out of people's back yards. Essentially, they could just keep going because

they're run by people in their own communities. We were better set up to continue operating without interruption than some other agencies because of the No Cost Grocery Programs. Food pantries, shelters, community meals, mental health recovery centers and a lot of those places, either like shut down, at least for a time, or couldn't operate, or couldn't receive our deliveries anymore. So it was a lot of reorganizing with those agencies and with the communities where we deliver food to basically find places for the food to go. In light of [the panic buying] we've become even more focused on the No Cost Grocery Programs. It was the focus of our energies and resources before COVID-19 but now we're routing more food there, too. (Cameron at BFR)

Cameron compares the NCGP's adaptability to the centralization of large food banks. With growing food insecurity, the NCGP was an efficient model for delivering food directly to people in their homes and neighborhoods, and distributing the food via neighborhood leaders who know their communities best.

We found that the flexible, decentralized, and horizontal structures, combined with a community-focused approach to food distribution, of the five food assistance programs were adaptive capacities that served community members well during the pandemic. At the time of the first interview, for example, BFR was collecting feedback from food recipient community members to rebuild its strategic plan, explaining that participant input was core to its mission. Harvest of Hope was increasing its own community outreach to connect more individuals experiencing food insecurity to its program. Jeff described how they were renovating SAME Café with a trauma-informed design to better provide understanding and care centered around clients' trauma. Lori emphasized the importance of trusting community expertise as a guiding principle for DUG programs:

We trust the community to know what is best for their community, because the people in the garden are living there, right? They know their

neighbors. They know who needs food, and what that should look like. (Lori at DUG)

Our interviewees highlight a variety of participant-focused strategies to improve the responsiveness and effectiveness of their programs, even in light of an evolving pandemic. Thus, while an understandable organizational response during a crisis would be to centralize or streamline decisions, BFR, Harvest of Hope, and SAME Café were actively reaching deeper into their community bases to ensure appropriate, responsive, and welcoming food distribution and operational design in the midst of the pandemic.

Cameron at BFR and Daniel at Harvest of Hope emphasized the difficulties of frequent changes in rules, safety guidelines, and circumstances, forcing them to adapt in very short time frames. Harvest of Hope Pantry and SAME Café reported on their challenges with continuing their food-choice model—a core value of their operations—and the challenge of safety precautions that affected kitchen and food preparation logistics. Thus, our findings point out that the characteristics of decentralized and flexible operations resulted in two distinct outcomes, at times in tension with each other. On the one hand, the ability to quickly adapt and decentralize operations was crucial for programs to meet increased demand and respond to pandemic conditions. At times, this adaptation was at the expense of mission and values, such as by reducing client choice.

In follow-up interviews in July 2021, programs were still dealing with the uncertainty of a drawn-out pandemic and how, or if, changes that have been adaptive might get “left off” in future planning. Cameron of BFR, for instance, noted that with all the pandemic attention on decentralization, mutual aid, and “community,” they fear that some organizations will co-opt those buzz words for funding opportunities without investing the time and resources into deeper community-led work. In the case of the five programs we investigated, however, the shift to different operational systems was combined with a recommitment to mission and values, by trusting community expertise and through community-informed design and participatory feedback models.

Aside from these internal operational shifts, emergency food distribution programs reached beyond their organizational assets to form new partnerships—a finding we describe next.

Partnering Across Organizations

Emergency assistance food programs developed or strengthened partnerships with each other, public schools, public transportation, and city management, creating a broader support system while also effectively delivering food aid to their respective communities.

Daniel described Harvest of Hope’s emerging partnerships with Boulder County Public Health, Boulder County Farmers Market, and Boulder County Transportation to help distribute food packages to those who were in isolation during the pandemic. This collaboration allowed the pantry, normally a physically stationary resource, some flexibility to become mobile in its distribution. The collaboration between city-run management and community gardens was essential for Grow Local and DUG’s land-use expansion. Julia of Grow Local reported that its production increased threefold with permission from Denver Parks and Recreation to use garden plots at the Civic Center Park, which were also made available for DUG to plant produce. DUG furthermore utilized unplanted plots in the school-based community gardens, since schools had shifted to remote learning. DUG and Grow Local demonstrate how land-use collaboration was essential to making up for food loss, as they coordinated with schools, city services, and landowners to do so:

Food systems work in the Denver Metro area, and that’s when we complement each other. It’s recognizing that there’s really no competition. I think that there’s been a really deep understanding of how valuable the garden, these places, are to the community, not just for the people in the garden planting. (Lori of DUG)

The drastic need for more produce due to rising food insecurity motivated Grow Local to expand its partnerships, which it mobilized through Zoom meeting platforms, facilitated by the city of

Denver. The coalition Grow Food, Feed People grew out of community need during the pandemic, connecting various nonprofits in Denver to share resources, expand services, and address a higher volume of demand. The coalition produced and donated 60,000 pounds of food in 2020 and planned to increase its production to 70,000 pounds in 2021, with hopes that the coalition will outlast the pandemic (Grow Local Colorado, n.d.). Lori of DUG brought attention to the limited grant allocation for several organizations with similar missions, suggesting that external funding opportunities could create competition among allied organizations. Instead, Lori later emphasized the importance of working together and expressed that competition is relatively absent in the network. With Grow Food, Feed People, “it’s all about how we are going to squeak out a lot more of our low funds” (Julia of Grow Local). Lori and the other representatives praised the new virtual network for its collective response and ability to successfully share resources and information, especially when funding was low or unavailable.

SAME Café representative Jeff also describes the positive impacts of the citywide collaborations:

We also had people from organizations reach out to us for help. One was Denver Human Services because they started having families that were going into emergency housing in motels around the city and they needed to feed them. Then [Urban Peak] asked us to help start serving meals to Urban Peak, a youth homeless shelter, and they asked us to start helping feed the youth that are in supportive housing. With all of that we ended up serving ... almost five times the number of people as before. (Jeff)

Jeff praised Denver’s Food Sustainability Council for communicating community needs to the mayoral committee and helping to facilitate the virtual meetings: “there’s people sitting at that table that are giving direct advice to the mayor of what Denver needs.” SAME Café was able to coordinate with restaurants for donations of to-go containers and use a neighboring shop’s outside space to increase the patio size for SAME Café. BFR and

SAME Café collaborated with local food industries to help mitigate food waste.

Finally, BFR tackled the problem of reduced food availability by leveraging its contacts with local farms. BFR used COVID-19 relief funding to buy directly from small farms that experienced supply-chain disruptions. This shift helped mitigate agricultural losses and provide a healthy food source to BFR. Daniel of Harvest of Hope wishes that donating food were more built into “the corporate plan” of general food production and distribution, suggesting that the pipeline should be made much easier for farmers and other producers to donate their excess food.

The social and environmental resilience of food systems has been put to the test during a rapidly evolving pandemic. While community-based food distribution programs have pivoted their operational logistics, forged partnerships and thus drawn from and/or grown their adaptive capacity, the program representatives voice hope and remaining concerns about food access as a result of the ongoing pandemic:

There’s been a much greater willingness to access food pantries. I’ve also appreciated that the pandemic has shone a light on the need for healthy food, so food became such an elevated conversation. That makes it a little bit more at the forefront of people’s minds because you’re talking about food and shelter. ... Those are the two biggies that you have to talk about when you’re in a pandemic or even generally. So it’s allowed food to ... become a bigger issue. (Jeff of SAME Café)

Cameron at BFR raised critical questions about how the urgency of the pandemic has catalyzed the reduction of barriers to food access (for instance via decentralized distribution, home food deliveries, and new organizational partnerships), asking, “What does it look like doing this work outside of urgency?” Which changes will remain? Our findings point out that the pandemic at once highlighted the ongoing and chronic food insecurity in the U.S., while simultaneously mobilizing and deepening the capacities of community-rooted emergency food distribution programs. When the

pandemic is less in the forefront, how can community-led work still seriously engage with the urgency of chronic barriers to equitable access?

Discussion

The most essential shifts adopted by emergency food distribution programs were mobilizing collective and community support, adapting logistical operations, and forging new partnerships. We characterize these three thematic areas as “pandemic pivots” that have successfully addressed the growing need and dynamic conditions of the pandemic. Through their smaller scale and flexible and decentralized structures, the emergency food distribution programs in Boulder and Denver were able to quickly and safely adjust their modes of getting food into the hands of those in need, and for some, at a faster pace than federal or state aid. These pandemic pivots were feasible for the five programs investigated because they centered on adaptive capacities already present in their responsive and community-rooted structures. From making take-out boxes, to working with local farms looking for a market to sell produce, several emergency food distribution programs could make critical decisions about logistical procedures based on their flexible and decentralized operational structure. In terms of social support and networks, we noted that they mobilized collective organizational and community resources and partnered with other agencies to address common challenges and share resources. Finally, the aspect of building community, emphasized by several respondents, demonstrated how a community-oriented food distribution program can not only address short-term needs, but invest in longer-term relationships and human capital. The community-building aspect of growing food together, as referenced by Lori from DUG, exemplifies this process.

Our findings call attention to how community-based emergency food distribution programs were able to draw from, and deepen, existing adaptive capacity. This echoes the cyclical nature of adaptive capacity conceptualized by Magis (2010), who highlights that by engaging with existing resources, community organizations can also build capacity for future resilience. For example, based on their long-standing roots in the community, SAME

Café, BFR, DUG, Grow Local, and Harvest of Hope could quickly mobilize resources of time, labor, and financial resources. At the same time, by engaging volunteer time and resources, the programs forged meaningful (re)connections with volunteers toward ongoing engagement. The attentive and community-engaged responses demonstrated through the emergency assistance programs’ pandemic pivots directly relate to the key role of participatory processes in building community resilience, as forwarded by Berkes and Ross (2013).

Recent works in this journal (Azizi Fardkhales & Lincoln, 2021; Harden et al., 2021) resonate with some of our findings about the positive role of decentralized food systems and social networking in resilient community-based food systems. We similarly found decentralized food distribution to be efficient at quickly pivoting to address emergent and dynamic needs. Staff and volunteers were able to make autonomous decisions about specific distribution sites relevant to the conditions and demands of their local contexts. Having a decentralized structure of distribution to advance horizontal structures of power is a central mission of BFR’s No Cost Grocery Programs. By actively combating the stigma of food assistance by placing participants as collaborators and co-designers of its distribution model, BFR was able to engage with participants themselves about what was needed and what might work better. Through mutually beneficial visioning on a strategic action plan, and by collecting feedback on what was working or not working about pandemic food distribution, BFR could not only incorporate practical changes in response to shifting conditions, but furthermore strengthen social learning processes. Thus, as opposed to a reactive approach to shocks, BFR is building these opportunities to foster learning and participation, simultaneously strengthening adaptive capacity for future (and ongoing) crises. Cretney (2014) argues that “resilience can be articulated and practiced in a way that expresses transformative, alternative counter-neoliberal discourses of self, community and society” (p. 635). Aspects of adaptive capacity that center collective resources, more equitable power structures, and networking among organizations reflect an ethics of collaboration. Contrary to discourses of charity prevalent in many circles of

emergency food programming (de Souza, 2019; Poppendieck, 1999), our study of community-based emergency food distribution programs shows that they articulate and practice the counter-neoliberal discourses of self and community forwarded by Cretney (2014) above. They commit to expanding food access as a right for all, without strings or conditionalities attached, as a collaborative effort. In this way, our case studies reflect Cloke et al.'s (2016) finding that emergency food distribution programs can demonstrate ethics of care, collaboration, and possibility.

This characterization of emergency food distribution as places of possibility and transformation is complex. As Cameron from BFR noted, "Ideally, we transform the food system so that there is no need for us to redistribute food. But how invested are most [charitable] food organizations in this outcome? It's tricky" (Cameron). Their comment reflects an ongoing challenge of nonprofit organizations that exist only in the framework of ongoing food insecurity. A further challenge in discussing the resilience of community-based emergency food distribution programs is unknown aspects related to prolonged food insecurity and financial stresses of COVID-19. As expressed by representatives in the findings, at times the same elements that foster resilience (for example, drawing from volunteer support, or having flexible operations) lead to uncertainty. Will collectively mobilized resources, including human resources, tire? How can programs plan successfully when they are reliant on a potentially fluctuating volunteer labor force and an uncertain financial base? In addition, the ability to pivot food distribution models also came with some sacrifice of client choice. The unknown elements about the pandemic make it difficult to make definitive claims about the resilience of these programs and points us back to the importance of the "situated resilience" framework (Cote & Nightingale, 2012). By understanding the specific dynamics of these five emergency food distribution programs, we have highlighted the adaptive capacities that have been critical for meeting the increased needs of their clients to date. As opposed to forwarding an abstract metric of resilience for all programs, such as flexibility, we simultaneously recognize that the same quality that fosters adap-

tive capacity can have limitations or tradeoffs. However, our findings do support previous research that emphasizes how fostering social learning, building flexibility into organizational infrastructure, and committing to collaboration can support resilience in communities (Berkes & Ross, 2013; Magis, 2010; Pingali et al., 2005).

We encourage future research on how other factors, including geographic factors and size and type of emergency food distribution program affect the strengthening of adaptive capacities in specific places. We also recognize that our study only included one representative from each program and did not center food-insecure participants and their assessment of the success and limitations of these food distribution programs' responses. Knowing how and for whom emergency food distribution provides benefits is a key piece of the puzzle.

Conclusion


Whereas the pandemic has laid bare numerous injustices in our food systems, it has also brought emergency food distribution infrastructure into the spotlight. From the support of volunteers and new partnerships, to flexible and decentralized food distribution models, programs in Boulder and Denver have pivoted their models to meet and respond to shifting conditions and community needs during COVID-19. Aspects of community resilience literature emphasize the role of social support and networks, along with physical infrastructure and an adaptive capacity, to learn and change in response to dynamic conditions (Berkes & Ross, 2013; Magis, 2010). In our research, we found that the degree to which emergency food distribution programs could shift and react was directly related to their deep roots in community, their ability to forge partnerships, and their existing organizational structures that facilitated appropriate and time-sensitive decision-making.

That said, any discussion of lasting food justice and social-ecological resilience requires serious attention to political and economic investments in community food systems more broadly, and not just emergency food distribution. Food insecurity cannot be addressed through emergency food distribution programs alone, as the root causes of structural inequality and racism must be considered

as key factors in a food system in which food insecurity has become so widespread. We nonetheless argue that greater attention to emergency food distribution programs, and what their organizational assets and community-rootedness might teach us, holds implications for community resilience literature more broadly in terms of how food programs can draw from and deepen their adaptive capacity in uncertain and dynamic times. As the demand for meeting the urgent need for food access has only increased throughout the course of the COVID-19 pandemic, we recognize that emergency food distribution continues to play an important role in the food provisioning of millions of Americans. If, at the same time, emergency food programs can foster participatory learning, community-building, and adaptive capacities in addition to distributing food, then they indeed fill an overlooked role for building community food system resilience.

In addition, while we have emphasized positive ways the emergency food distribution programs in our study have been able to adapt, we caution against romanticizing either “the local” or “community”; while some community-based emergency food distribution programs can be resilient in a socially and environmentally just way, they are not *inherently* so just because they are “local” or “community-based” (Born & Purcell, 2006). This is why

we underscore the importance of a place-based, qualitative approach to understand how food distribution programs are situated within their socio-spatial context and the specific challenges (and opportunities) they may encounter.

While COVID-19 has highlighted the need for adaptive food systems, we urge more critical scholarship to consider resilience as a concept that means more than simply bouncing back. Reflexive, responsive, and democratic food systems, supported with both physical and social capital, are well situated for our dynamic world. But what is more, we must begin thinking about disruptions and food system pivots as opportunities for transformation. Attention to the possibilities of care and mutual aid in community-based emergency food distribution programs may provide clues to what those fair futures look like. 

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Native American agriculture and food systems: Challenges and opportunities presented by the COVID-19 pandemic

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Abstract

The COVID-19 pandemic has unveiled deep and systemic weaknesses and gross inequalities in U.S. food and farming systems, compounding the effects of an already unjust food and agricultural system. Emergent studies reveal disproportionate effects of the pandemic on minority farmers and vulnerable communities, as well as inequitable access to critical relief programs. Less is understood about the experiences and responses of Native American producers, tribal governments, and tribal-led organizations to the COVID-19 cri-

sis. As the nation's primary Native American agriculture and natural resources organization, serving 574 Federally Recognized Tribal communities throughout the United States, the Intertribal Agriculture Council (IAC) received a resounding increase in inquiries during the pandemic pertaining to a number of challenges that tribal producers and governments face. In response, IAC launched a series of national surveys to assess the impacts and needs of Native American producers, tribal governments, and grocery stores in and near tribal communities, with the goal of identifying effective

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strategies to address tribal priorities in policy and programming. As we continue to learn about the causes and consequences of food system ruptures during the COVID-19 pandemic, it has become abundantly clear that increased investment in and sovereignty over decentralized regional food and farming systems' infrastructure and markets are needed to strengthen the economic viability and resilience of Native American agriculture and food systems.

Keywords

Agriculture, Food Systems, Native Americans, COVID-19, Pandemic, Intertribal Agriculture Council, American Indian/Alaska Native, Food Sovereignty, Supply Chains

Introduction

As the impacts of COVID-19 began to reverberate across the nation, it became evident that our food system was woefully unprepared to respond to the chaos that ensued: grocery store shelves ran empty while farmers across the country suffered drastic market losses. Researchers found not only disproportionate impacts on minority farmers (Haqiqi & Horeh, 2021) but also inequitable access to relief programs, which disproportionately benefited larger-scale and better-resourced farm operations (Brown, 2020). According to Haqiqi and Horeh (2021), small-scale producers and Hispanic and African American–operated farms suffered the most loss of productivity during COVID-19, with livestock producers losing twice as much as crop producers. Another study found that COVID-19 relief funds intended to support struggling agricultural producers were actually distributed to wealthier and large-scale land owners rather than those truly at risk in the crisis (Brown, 2020). Yet very little information was being generated about the impact of COVID-19 on Native American producers,¹ a sector of producers with a history of vulner-

ability through inequitable resource allocation and support.

As the nation's primary Native American agriculture and natural resources organization, serving 574 Federally Recognized Tribal communities throughout the United States, the Intertribal Agriculture Council's (IAC) capacity and integration into tribal communities are unmatched. As the effects of the pandemic deepened, IAC received a resounding uptick in inquiries pertaining to a host of issues with which tribal producers and governments were contending. With the impacts of COVID-19 being felt so resoundingly across the country, and especially within rural tribal communities, it became imperative to inform the U.S. Department of Agriculture (USDA) and IAC's multisectoral partners of the unique and exacerbated issues tribal producers and communities were facing (Hoover, 2020). IAC responded quickly, launching a series of surveys to assess the impact on and needs of Native American producers, tribal governments, and grocery stores in and near tribal communities. In collaboration with academic researchers from The University of California Berkeley, The Pennsylvania State University, and the Indigenous Food and Agriculture Initiative (IFAI), IAC analyzed the results of these surveys to better understand both the impact of the COVID-19 pandemic on Native American farmers and food systems as well as tribal-identified needs and priorities. The results are intended to help inform programming that serves Native American producers and communities as well as 2023 farm bill priorities. As we continue to learn about the causes and consequences of food system ruptures during the COVID-19 pandemic, it has become abundantly clear that increased investment in and sovereignty over regional food and farming systems infrastructure and markets are needed in order to strengthen the economic viability and resilience of Native American agriculture and food systems.

¹ In this article, we use the term Native American or Native when referencing the people or communities (inclusive of all Native American and Alaska Native people residing in the U.S.), and we use AI/AN (American Indian/Alaska Native) when referring to statistics from government documents. The term *producer* describes the spectrum of entities across Indian Country that the Intertribal Agriculture Council engages with that may include, but are not limited to individuals, tribes, tribal for-profit and nonprofit corporations, cooperatives, organizations, collectives, associations, and others engaging in intentional land or waterway management for food, fiber, medicines, and other cultural products.

This paper begins with an overview of historical injustices against and the resilience of Indigenous producers, followed by a methods section describing the IAC-led surveys and data analysis. Next, through our results, we detail the impact of COVID-19 on Native American producers, food systems, and communities through the experiences and voices of Native American producers and leaders as well as broader trends identified in the survey. We also report desired resources to mitigate the impact and foster resilience. We end with a discussion of our findings, emphasizing the need to shorten and decentralize supply chains, scale up direct marketing, and enable more tribal-owned and -operated food production, highlighting key avenues of investment.

COVID-19 Exacerbates Historical Inequities in Indian Country

According to the 2017 USDA Agriculture Census, there are 79,198 farms with AI/AN producers² in the U.S., accounting for 2.94% of all American farms and 6.53% of all farmland, largely concentrated in Arizona, Oklahoma, New Mexico, and Texas³ (USDA National Agricultural Statistics Service [USDA NASS], 2017a, 2017b). AI/AN producers are the second most prevalent of all Black, Indigenous, and People of Color (BIPOC) farmers, with a growing population second to Hispanic farmers (USDA NASS, 2017c). These numbers are quite remarkable, given the colonial history and legacy of displacement, chronic underfunding of Indian agriculture, and the longstanding history of discrimination against Native American farmers and ranchers, similar to other minoritized farmers (Brewer & Stock, 2016; Vernon, 2015). Notably, in the historic 1999 Keepseagle lawsuit, plaintiffs alleged that since 1981, the USDA had systematically denied Native American farmers and ranchers the same opportunities as white farmers to access low-interest loans and loan servicing, causing them hundreds of millions of dollars in economic losses

(VanWinkle & Friedman, 2019). In 2011, the U.S. District Court for the District of Columbia approved a US\$760 million settlement, with payments of US\$680 million made to claimants, US\$80 million for debt relief, and the remaining US\$380 million disbursed to organizations and nonprofits serving Native American farmers and ranchers through the Native American Agriculture Fund (NAAF), established for this purpose (NAAF, 2018).

From 2012 to 2017, AI/AN producers and AI/AN-owned farms grew by 7 and 10 percentage points, respectively, during a time when the number of farms in the U.S. actually decreased (USDA NASS, 2017b), suggesting, perhaps, positive results from the Keepseagle settlement, including increased access to capital, financing, and technical assistance from IAC and other organizations serving Native American farmers and ranchers. Yet in spite of these upward trends, even prior to the pandemic, the net cash farm income of AI/AN producers was just one-fifth of all other producers in the U.S., and the market value of products sold by AI/AN producers was less than a third of those produced by other ethnicities (USDA NASS, 2017a). Most AI/AN farms are family farms (96%), yet very few sell directly to consumers (only 6%), and only 1% are certified organic, suggesting that few Native producers profit from higher organic prices and most depend on non-local markets for their livelihoods. The pandemic further stressed and challenged Native American producers and food systems in Indian country, as grocery stores, processing facilities, and marketing outlets were shut down (Stranger-McLaughlin et al., 2021).

Despite the challenges posed by the pandemic, many small-scale producers with internet access and direct access to consumers (i.e., short and flexible supply chains)—a minority in Indian Country—pivoted to mail order and home delivery e-commerce, with direct sales by some tech-savvy

² Those that identified as AI/AN alone or in combination with another race. AI/AN farmers have been undercounted traditionally in the Census of Agriculture; it is likely the count is actually higher (Rosenberg, 2017).

³ While Texas has over 100 million acres in agricultural production, only 1.3 million acres are owned by AI/AN producers, despite a high concentration of AI/AN producers in the state. This reveals a land base that is less tribally run or owned, presumably due to the history of displacing AI/AN people from their tribal homelands throughout the country and forcing their relocation to Texas.

farmers actually predicted to have increased during the pandemic⁴ (Goetz et al., 2020). Many cities and states declared farmers' markets essential services allowing them to remain open when other food retail operations were closed, sustaining this important market for many direct-market producers (Greenaway, 2020). However, as noted earlier, only 6% of Native producers sell direct, and therefore very few were able to take advantage of these local and regional marketing opportunities.

Methods

IAC's membership consists of all 574 Federally Recognized Tribal communities across the country. From April through August 2020, IAC administered a series of surveys (with a follow-up survey in December 2020) as a rapid response to assess COVID-19 impacts on rural tribal communities and Native American producers. Rapid-response, online surveys were a common method employed across the food system to understand COVID-19 impacts while minimizing the risk and spread of COVID-19 (e.g., Riden et al., 2020). The surveys were distributed to all active member tribes in which outreach was deployed within the last five years. An internal committee of IAC leadership and staff designed the surveys utilizing short-answer, multiple-choice, and fill-in questions. Five surveys were conducted that targeted different food system stakeholders: producers (any Native American producer who may have received technical assistance from IAC), American Indian Foods

producers,⁵ tribal leaders, grocery stores in or near tribal areas, and a follow-up survey administered at the virtual, annual IAC conference (see Table 1). Themes covered in the surveys include COVID-19's impact on producers, tribal communities, and grocery stores; response to COVID-19; type of producer and demographics of the respondents; utilization of various technical services (Federally Recognized Tribes Extension Program [FRTEP], Farm Service Agency [FSA], Natural Resources Conservation Service [NRCS], and 4-H); and desired resources to help support producers and communities. Each survey included unique questions as well as some questions that were common to all five surveys. The surveys were administered using Google Forms, a tool that had been used successfully by IAC in the past. Social media posts, email communications, phone calls, promotions on IAC national webinars and a number of partner webinars, and one-to-one remote support were employed across IAC's 12 regions to stimulate participation once the surveys were designed and ready to be deployed. Survey respondents with limited internet access were administered the survey over the phone to minimize the exclusion of respondents with internet limitations.

IAC estimates that around 2,000 people were meaningfully exposed to or reached with the survey through outreach activities. In total, 401 surveys were completed across all five surveys conducted (see Table 1), with an estimated 20% response rate. The responses were analyzed in partnership with

Table 1. Surveys Administered to IAC Members

Survey	Sample Size
Producers survey	249
American Indian Foods producers survey	36
Tribal leaders survey	53
Grocers survey	24
Follow-up producers survey	39

⁴ In 2018, Americans only spent 0.3% of expenditures on food obtained through direct sales (Elitza & Okrent, 2018, in Goetz et al., 2020).

⁵ American Indian Foods producers are those who are officially part of the American Indian Foods program of the Intertribal Agriculture Council, which began in 1998 under contract with the USDA Foreign Agricultural Service. "The partnership was developed as a platform for American Indian food businesses to showcase their products and share Tribal cultures with the world" (IAC, n.d., para. 1).

academic allies from the University of California Berkeley Environmental Science and Policy Management Department and Pennsylvania State University Social Science Research Institute. Quantitative data analysis was done in Stata using descriptive statistics. Qualitative data from open-ended questions were read collectively and then responses were coded by question for prevailing themes emerging from the data. Codes or themes were unique to each question, not uniform among all open-ended questions. After a first round of open coding for each question, coding was reviewed and adjustments such as combining codes, changing code names, moving passages between codes, or making new codes were made. We kept track of the number of responses that fell into each code for each question to understand the magnitude of experience. Our broader team of IAC staff, university researchers, and IFAI staff met over several months through video conference in order to collaboratively discuss and interpret the data and their implications.

Results

Demographics of Survey Participants

All 12 IAC service areas are represented in the survey, with participation fairly spread among regions; the number of respondents ranged from 43 in the Rocky Mountain Region to one in the Southern Plains Region, with a median of 32 among all regions. The majority of producers are 36–65 years old, with 12.3% of producers over the age of 65 and 2.8% of producers under the age of 25. Of the producers surveyed, 94.4% identify as Native American. About a quarter utilized various technical services (FRTEP, FSA, NRCS, and 4-H). Fifteen percent are farm-to-market vendors. Of the producers surveyed, 61.85% are livestock producers, 33.3% grow produce, 23.7% produce other products (including seafood), 15% produce traditional foods, 13.7% are retailers, 10.4% are specialty foods producers, and 5.2% raise nursery products. On average, survey participants produce 1.65 products, with the maximum number of products being 6. Livestock producers were the least diversified, while producers of traditional foods sold 2.86 products, produce producers 2.43 prod-

ucts, and specialty food producers 3.15 products, on average ($N=249$).

Impact of COVID-19 on Producers

Over 85% of producers have been negatively affected by the COVID-19 pandemic ($N=249$), and 53.7% of Native American producers or American Indian Foods producers experienced a complete or partial closure due to the pandemic ($N=285$). Additionally, about 36% of producers expected a loss of future sales and reduction of workforce. Almost half of all producers experienced a backorder or lack of availability of essential supplies ($N=249$) and 33% a supply-chain disruption ($N=285$). Twenty-three (23) producers reported major challenges accessing seeds, noting that seeds were being bought up by the general public, leaving producers without; they also reported challenges accessing feed (grains and hay), equipment and parts, and sanitation supplies due to the closure of stores, or that the products were backordered or delayed in delivery. These findings are broadly important as they illustrate where to target efforts to improve resiliency in markets and supply chains.

In terms of market demand, 52.2% of producers reported a decrease in market demand, 27.3% said market demand remained the same, 20.5% said market demand increased ($N=249$). The latter involved those selling produce, seedlings, beans, hay and/or alfalfa, livestock (for home consumption), traditional foods, and specialty crops and retailers. One farmer who is known to save seed and grow produce saw a doubling in the number of consumers, with an immediate 50% increase in retail sales. However, labor was in short supply, due to shelter-in-place orders, which challenged many farming operations further.

The most dramatic *decrease* in demand was in the livestock industry, with cattle prices at auction way down and some producers reporting up to a 50% reduction in price per pound for cattle, as processing plants shut down—yet consumer prices for beef went up. As one livestock producer stated, “Cattle prices keep dropping. They have been reduced to \$.30 per lb. . . . because of the processing plants being closed down . . . there is nowhere to process them, nowhere to sell them.”

As a result, consumer demand for meat products skyrocketed, such that the general public began “buying up beef calves to fill their own freezer.”

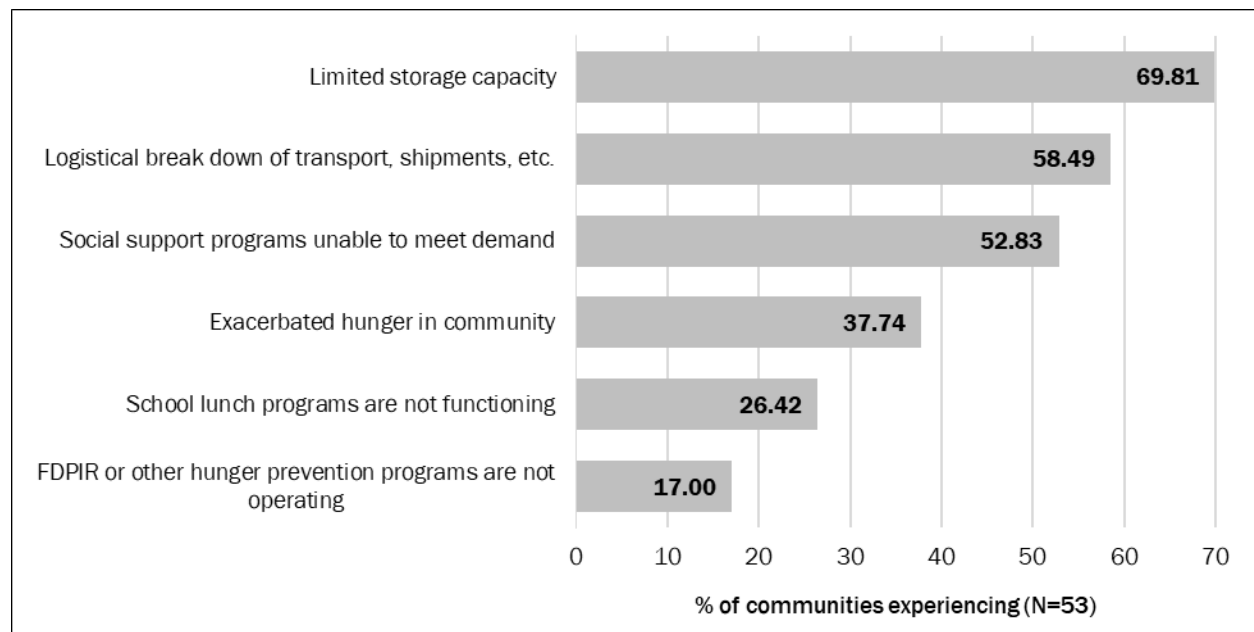
Other respondents in other sectors reported a loss of sales due to a reduction in spending power by consumers, as well as closures of prime sales outlets such as rodeos, events, restaurants, and farmers markets. One farmer stated that previously, “over 70% of our products were sold to restaurants or to distributors that sell to restaurants. The restaurant closures have significantly impacted demand in our largest market.” Another lamented the loss of farmers markets as well, saying “they provide 80% of our income for 5 months of the year.” Restrictions on travel due to shelter-in-place policies further affected product sales. One person cited losses due to expectations that food should be donated during the crisis. In a few cases, tribes tried to procure product from Native producers to distribute to tribal members. As one fisherman noted, “All fish markets that carry our product have closed and are not purchasing fish. However, one opportunity opened as a Tribe wanted to purchase our fish for their foods program, however the sale did not come to fruition.”

Impact of COVID-19 on Food Access and Food Systems in Tribal Communities

Tribal leaders reported interruptions to local food systems, an aggravation of food insecurity, and challenges in maintaining social support and hunger prevention programs (N=53). Seventy-nine percent of tribal leaders said their community had limited essential staples and almost 70% had limited storage capacity for stockpiling of any type of staple foods. Almost 38% said hunger was exacerbated in their community, and over half of the communities had an increased demand for social support programs that could not be met. School lunch programs in 26% of communities stopped functioning, and the Food Distribution Program on Indian Reservations (FDPIR) or other food assistance programs stopped functioning in 17% of communities (Figure 1). In response to new stressors, 34% of tribal leaders reported that they conducted a food security assessment in their community, and 73.6% desired assistance doing so. Additionally, 62.3% of tribal leaders said youth professional development efforts are needed to increase access to food supplies in their community (N=53). While the sample size is comparatively

Figure 1. Proportion of Tribal Communities Experiencing Each Food System Challenge During Spring and Summer 2020 of the First Year of the Pandemic

FDPIR=Food Distribution Program on Indian Reservations



smaller than that of producers surveyed, this information is significant in highlighting the community impacts of these market and supply chain shortcomings and includes tribal leaders from 53 different tribal organizations or entities.

The majority of tribal leaders reported that their communities were negatively affected by COVID-19, but also shared examples of community resilience. One respondent noted, “On the negative side, it’s been challenging for people with mental health issues with a spike in anxiety and other issues. The Tribe has been responding with food access, to reduce stress in access to food. Now the issue is isolation and how to respond to that while keeping people safe.” On the positive side, many tribal governments jumped into action, supporting gardening initiatives and mobilizing relief efforts. Meals were provided to elders and school kids, ensuring food was brought into local smoke shops and other spaces that would not ordinarily sell food as a food-access measure. In several cases, tribal governments stepped in to ensure ongoing access to fresh produce. Additionally, IAC provided individualized technical assistance and COVID-19 relief program outreach to tribal leaders, departments, and Native food and agriculture producers. Respondents cited how the pandemic has brought home the importance of Indigenous food sovereignty, by centering traditional foodways and focusing on gardening and self-sufficiency. It has also brought home the importance of disaster preparedness. One tribal leader spoke about the pandemic being an opportunity to strengthen food sovereignty:

Food donations of fresh vegetables have not always been appreciated by *numerous* community members because they are not used to purchasing fresh vegetables, much less how to prepare them. This is a major problem because many of them have that “commodity mentality” of canned vegetables and processed foods. The “stay at home” C-19 safety measures are an opportunity for families to start a small garden and learn how to diversify their garden beyond the corn and squash.

Food System Challenges Experienced by Grocers In or Near Tribal Communities

Seventy-five percent of grocers in or near tribal communities reported that demand for their products outpaced the supply (N=24). Additionally, 33.3% of grocers said wholesale prices increased and 62.5% experienced wholesale order restrictions or delays. Almost 38% of grocers surveyed said they sourced food from American Indian Foods producers and 87.5% of grocers wanted more information about sourcing wholesale products directly from American Indian Foods producers (N=24).

In response to the question (in the grocers’ survey) about how the pandemic has negatively or positively affected their production and/or business, respondents shared a desire for more decentralized, localized food systems. A few shared examples of how local businesses were able to supply food locally without raising prices. One community supported agriculture (CSA) producer described the challenges associated with the closure of CSA pick-up sites, loss of labor, decline in seed availability, financing needed to develop a website and online sales platform, no-contact delivery, and accessing a communal facility due to COVID-19 restrictions. Another highlighted the clear need to strengthen the resilience of food systems through decentralization to allow for greater flexibility and adaptability during times of crisis, such as by allowing for certification of mobile slaughterhouse facilities. This pandemic also shed light on the importance of having WiFi at farmers markets (to process online transactions), strengthening technology training and record-keeping, and mentoring the next generation of farmers.

Resources Desired by Producers

Producers were asked to identify which resources or information they desired to assist them in marketing or providing their products to their community or target market (see Figure 2); a complementary question provided space for producers to elaborate on their selections. More “financing or funding options” was the most desired selection (62.7%), followed by marketing support (49.4%), networking, resource identification, and technical

assistance⁶ (37.3%), business development (33.3%), and food systems support (28.9%) (Figure 2).

Financing or Funding

When asked to elaborate, again the most ($n=22$) cited need was financial help to get food producing businesses through this difficult financial time, including overcoming the challenges of borrowing money on the reservation, accessing programs to help community members afford to buy food, and general relief and disaster assistance. Respondents were also hoping for “better prices,” particularly related to cattle. Some respondents wanted to subsidize producers “to help support ranchers when prices become low”; others sought funds for consumers to be able to buy their product, such as “funds to subsidize costs for low-income consumers and tribal programs.”

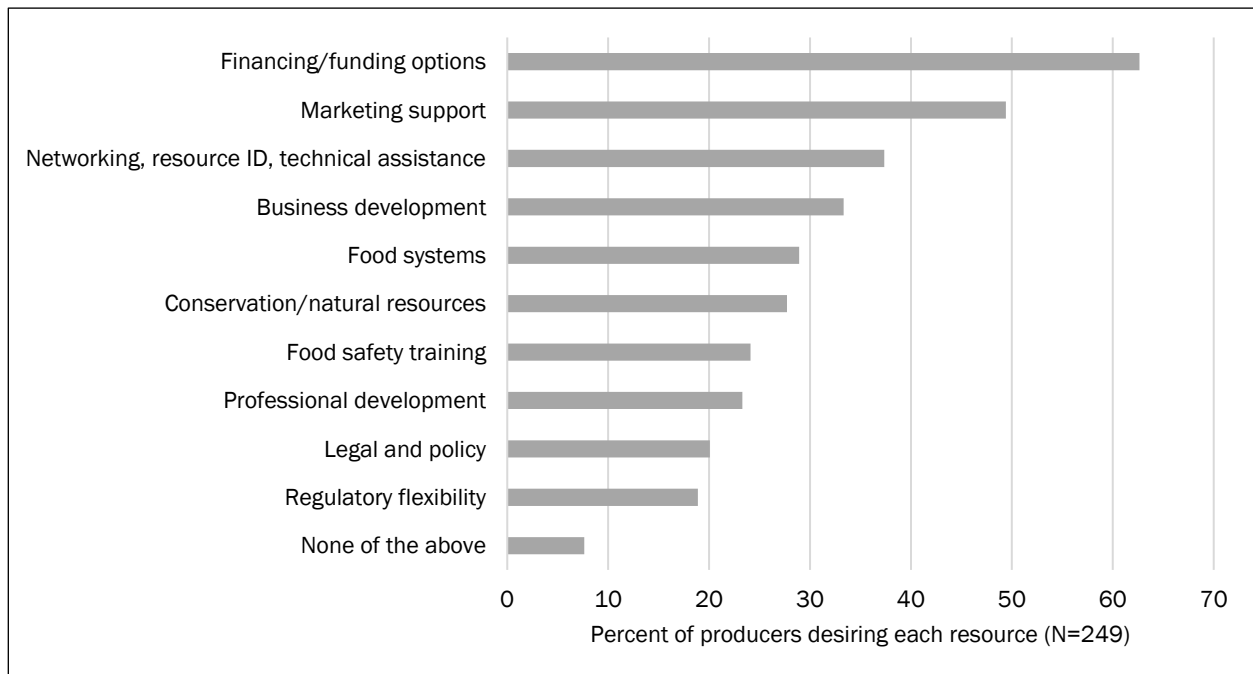
Approximately a year into the pandemic, IAC conference participants ($N=39$) still emphasized the need for better financing support and help applying to specific COVID-19 relief programs.

There was an observed gap in information access between large- and small-scale producers. People mentioned the need for information for *all* producers on accessing USDA resources and financial aid information (existing and upcoming) for short-term, long-term, and emergency programs. Other recommendations included continued financial aid or even multiyear aid to assist in recovery over time, and local, centralized outlets for technical assistance and information related to aid and relief with the option to make an appointment or join a mailing list.

Marketing Support and Advertising

An equally desired resource was help with advertising ($n=11$) or marketing ($n=11$). Beyond just citing the need for more advertising, one respondent felt that producers needed “national media attention,” and another felt they needed “promotional advertising from the community, tribe, or someone famous!” This included marketing not just to the broader public, but specifically “regional market-

Figure 2. Desired Resources by Producers to Help Their Products Reach Their Target Market or Community



⁶ Networking, resource identification, and technical assistance represents the support of IAC Technical Assistance by utilizing an array of USDA production expertise and resource-based networks to support initiatives to improve agricultural resiliency in tribal communities.

ing” and to local service providers: “To market to schools, senior centers, food distribution centers and food banks.” Four respondents wrote that they needed help specifically getting beef labeled and marketed. Successful marketing and advertising would include “packaging recognition, personal labeling, advertising for the right audience.” Six respondents indicated that “educating consumers” would be an important aspect of successfully marketing and selling products. Three respondents specifically wanted access to lists to help boost their sales: list of names for local consumers and lists of available markets for selling cattle and alfalfa. While two respondents (from Arizona and South Dakota) wrote that radio and newspaper advertising would be the tactic most helpful to sell products, more participants (5) indicated that they wanted help with online marketing, and learning how to use online platforms for marketing. An additional three mentioned that they were now using social media to do their marketing.

Regulatory Flexibility or Change

Fifteen respondents felt that regulatory change or flexibility was needed to help them more effectively sell their product during this time. Policy suggestions to address issues faced by producers included “a food and food safety code that made sense for the smaller tribal business” and country-of-origin labeling on beef to encourage consumers to buy local. Increasing regulatory flexibility around butchering and selling livestock locally ($n=5$) was seen as one avenue, with some respondents recommending “open sales of beef for local use” and “loosening requirements for the sale of meat products by private individuals/producers,” specifically making it possible to sell beef to the public “without so many hoops to jump through!” and “without USDA inspection.” These respondents felt the key was “regulatory flexibility to facilitate local sourcing.”

While some thought the answer was less regulation around local sales of meat, others saw the answer as regulating meat packers, suggesting “regulation for the meat packers that balances the market with producers,” breaking up meat packer monopolies, or requiring them “to purchase a larger percentage of their cattle from live markets rather than futures contracts.”

Localized Meat Processing

In order to supply more meat in a direct-to-consumer market, many (29) livestock producers cited the need for more localized meat processing facilities. The shutting down of larger meat packing plants during the pandemic was cited by one New Mexico rancher as evidence of the need for local plants. Being able to access “mobile processing centers” or other types of local facilities would spare ranchers from having to sell “mostly at auction” or “off the hoof.” Overall, being able to sell meat from ranchers direct-to-consumer was seen as a more effective way of providing food to communities and keeping ranchers in business.

Alternative Markets and Direct-to-Consumer Sales

The call for more local slaughter facilities was part of a broader movement toward wanting more localized direct-to-consumer sales. To make this happen would require creating new kinds of direct-marketing channels like farmers markets, roadside stands, or local storefronts. Aside from in-person sites from which to sell products, a New Mexico producer suggested “a mail order mechanism” and others suggested online marketing sites or “a direct to the public or boat to public phone app or internet website.” With the rapid shift of much of the economy to be online, 15 respondents also cited the need for other online services in addition to advertising, including support with setting up websites and carrying out online sales, the establishment of an online marketplace, and the development of a direct-to-the-public phone app or website for fishermen.

Business and Workforce Development

Ten respondents described the need for business development assistance, including creating a better business plan, finding more buyers, getting access to other tribal markets and other new domestic markets or wholesale contacts, and helping with CSA development training. For an additional 10 respondents, help with workforce and development, specifically increasing the number of staff, staff training, logistics, and delivery driving were the aspects of business development they needed help with most. Maintaining the safety of employ-

ees and increasing knowledge around safety and hygiene standards were also mentioned. The specific need for more Native food inspectors was also raised by two respondents in California.

Eight respondents described networking as a tactic for improving business viability, including “being able to have group meetings to share business opportunities” as well as “being able to network with other areas to improve regional marketing.” Creating or joining associations or co-ops in order to improve business prospects was also mentioned by four respondents.

Equipment, Storage, and Facilities

Part of building capacity for three of these food producers included the need for more equipment: generalized farm equipment, transportation equipment, and, for one Oklahoma farmer, being able to import the necessary equipment to process hemp. There was also cited the need for storage infrastructure, including refrigeration for butchered livestock. Processing equipment (like a corn mill and dehydrator) were also mentioned, as well as the broader need for a whole licensed commercial kitchen to be shared among rural community members.

The need for more transportation equipment ties to other responses around delivery issues: the need for help with “delivery of product,” “increased shipping options to the market,” “help with logistics and delivery driving,” and specifically more information on “how to deliver livestock” were all mentioned.

Discussion

Our study provides one of the most comprehensive assessments to date of the impact of COVID-19 on Native American producers, food systems, and communities across the United States (see also Stranger-McLaughlin et al., 2021). Out of 401 total survey respondents in our survey, 94% identified as American Indian or Alaska Native, 285 were tribal producers, 53 were tribal leaders representing their communities, and 24 were grocers in or near tribal lands. Our study illuminates the challenges and hardships exacerbated and generated by the COVID-19 pandemic on Native American producers and communities, with significant impacts on

Native-owned businesses and tribal community food security. Eighty-five percent of producers reported being negatively impacted by the pandemic, with almost 54% of Native-owned producers closing or partially closing as a result of the pandemic. A third experienced a reduction in their labor force, resulting in a projected loss of future sales and depletion of their cash reserves, having a substantial and lasting impact to a growing industry (USDA NASS, 2017b). Many producers reported closed markets, processing roadblocks, and decline in market price, particularly for livestock producers. Chapter 12 family farm bankruptcies for all U.S. farmers increased 8% between June 2019 and June 2020 (American Farm Bureau Federation, 2020), with an estimated decline of US\$688.7 million in sales across local and regional markets from March to May 2020 (Thilmany et al., 2020). With many Native-owned farms already experiencing a zero or negative margin of profit prior to the pandemic (USDA NASS, 2017a), the economic stress incurred has put many in survival mode—making risk-averse decisions just to stay afloat. More than a quarter of producers surveyed experienced supply-chain disruptions, with issues accessing livestock feed, supplies for hoop houses, and more. Supply-chain disruptions in transporting products and receiving essential agricultural supplies continue to be a major problem in agri-business in the U.S. and abroad (Barman et al., 2021; Swanson, 2021).

Shortening Supply Chains and Scaling Up Direct Marketing

Overall, about half (52%) of all Native producers reported a decrease in market demand; however, nearly half of respondents reported that market demand stayed the same or increased. Direct-market vendors including produce farmers, retailers, and traditional food and specialty food producers experienced an increase in demand for their products, whereas Native livestock producers across the board experienced dramatic market loss, as livestock auction prices fell due to supply-chain bottlenecks and closures, in spite of an *increase* in consumer demand for local meat. This trend mirrors the broad increase in demand for locally sourced food through direct sales via farmers markets, CSAs, and online sales (Goetz et al., 2020; Local

and Regional Food Systems Response to Covid, 2020), although the CSA model is underutilized by BIPOC producers (Local and Regional Food Systems Response to Covid, 2020). Short, direct supply chains have been proven the most successful and resilient in both providing and accessing agricultural products during the pandemic (Lioutas & Chrysanthi, 2021; Oliveira et al., 2020) as well as providing the most income (Verhaegen & Van Huylenbroeck, 2001).

Studies suggest that diversified producers tend to be more resilient to market volatility as well as to the shocks and stressors posed by the pandemic (Local and Regional Food Systems Response to Covid, 2020). Our study showed that Native producers engaged in direct marketing were more diversified in the number and type of products offered by their business, and many of them experienced an increase in demand. Yet during the pandemic, many diversified small and midsized farms, like our survey respondents, were unable to respond to changes in the marketplace and consumer demand due to cost, language barriers, lack of land access, labor shortages, and limitations in technological infrastructure. BIPOC farmers in particular experienced limited technical support to access COVID-19 relief programs and resources (Local and Regional Food Systems Response to Covid, 2020).

Many small to midsized agricultural operations did successfully pivot from in-person to online sales as demand for local food increased during COVID-19. However, according to the 2017 agricultural census, only 66% of AI/AN producers have internet access, with substantial variability by state; only 41% of AI/AN producers in Arizona and 32% in New Mexico have access to internet (NAAF, n.d.; USDA NASS, 2017a). Poor internet access makes it very hard for producers to sustain sales and reach customers and for customers to access local foods during a pandemic that has incurred market closures, processing and transportation bottlenecks, and reduced mobility. As the pandemic progressed, survey respondents emphasized the essential need for reliable internet. Over half of producers in our study expressed interest in training and support in developing ecommerce sites and improving their online presence.

Social isolation and reduced mobility affected not only people's mental and physical health, but also producer sales. However, a study of 504 Native respondents during the pandemic found that food sharing and trading had increased by 10% over pre-pandemic times, suggesting that reliance on social networks and families only grew stronger (Stranger-McLaughlin et al., 2021). Studies have found that strong farmer networks and trusted relationships between farmers and their community can also support resilience during times of crises. Sustained farmer networks and producer-to-consumer trust, even in times of social distancing, are important (Giampietri et al., 2018). Khanal et al. (2020) found that small, minority farmers embedded within strong community farming networks in Tennessee, Maryland, and Delaware had greater sales compared to those who were not as well connected to other farmers. The authors found that strong social network connectivity was crucial for production, marketing, and resource-sharing. This suggests that in addition to financing, technical assistance, and improved internet technology, investment in farmer networks in Indian country could strengthen the resilience to food system shocks.

Decentralized Meat Processing Is Needed

Increased consolidation of the meatpacking industry has had profound effects not only on reducing market access for small-scale producers (Newlin, 2020), but also increased vulnerability for livestock producers to supply-chain disruption during the pandemic. More than 60% of producers in our survey were cattle producers, which is reflective of the national distribution of AI/AN farmers by product type in the 2017 Agriculture Census (USDA NASS, 2017c). While cattle producers were more widely affected by market loss due to COVID-19 than other producers, they had lower rates of closure than other operations, suggesting more stability in emergencies perhaps through greater access to programs (NRCS and FSA) and resources, and potentially a larger financial base to withstand financial shocks. However, meat processing at USDA-approved slaughterhouses presented a major challenge to cattle producers in this survey as well as consumers who wanted to buy local meat but

could not because essential processing facilities were unavailable or backlogged. This trend has reverberated throughout the meat industry with meat processing and packing facilities experiencing closures, labor shortages, and reduced capacity from COVID-19 outbreaks and distancing regulations nationwide (Hobbs, 2021).⁷ According to the USDA (2021), the COVID-19 pandemic revealed that the meatpacking (slaughter and processing) system is “too rigid and too fragile” (para. 3). Even prior to the pandemic, access to USDA-certified meatpacking facilities had been a challenge for producers in remote areas, including tribal territories, as the meatpacking industry has become increasingly consolidated (Newlin, 2020). Today, just four large meat-packing companies control over 80% of the beef market alone, which has contributed to bottlenecks in America’s food supply chain (USDA, 2021).

In response to crippling meat supply disruptions, new policies developed during the pandemic may finally be addressing these issues—if they are sustained (Nickelsburg, 2020). In July 2021, as part of President Biden’s American Rescue Plan, the USDA announced that it “intends to make significant investments to expand processing capacity and increase competition in meat and poultry processing to make agricultural markets more accessible, fair, competitive, and resilient for American farmers and ranchers” (USDA, 2021, para. 1). Specifically, it is investing US\$500 million to expand processing facilities “so that farmers, ranchers, and consumers have more choices in the marketplace” (para. 2) and an additional US\$120 million to small and very small processing facilities to help them weather COVID-19. A North Dakota State University animal sciences professor notes, “We lost a lot of our small processing or locker plants and it’s really something I think we need. . . . It helps move some of the beef along. When you get down to it, the small plants don’t move that much beef, but it’s a good option for a lot of producers” (Newlin, 2020, “Show me the money!” para. 4). Yet it remains unclear whether this level of investment is sufficient.

There have been ongoing calls for decentralized, mobile, and tribal-run meat processing facilities, and as demonstrated in our study, the need is even greater during times of crisis. Many tribes have already responded to this need by opening their own meat processing facilities, such as the 4,800-member Quapaw Tribe of Oklahoma, who process bison and beef in the first tribally owned and operated meatpacking plant (Baca, 2018; Wallace, 2020). Similarly, the Blackfeet Nation is building a US\$10 million meat-processing facility to strengthen tribal food sovereignty, create jobs, and possibly enhance the production of “ancestral foods.” “If we had a local processing plant where people wouldn’t get ripped off, it might also encourage more producers to switch over from cattle to bison” (Greenfield, 2021, para. 8), said Danielle Antelope, a member of FAST (Food Access and Sustainability Team) Blackfeet. The Osage Nation used part of its CARES (Coronavirus Aid, Relief, and Economic Security) funding to open a meat processing plant, a long-term investment in food security and sovereignty (Stranger-McLaughlin et al., 2021). It’s clear that decentralizing the meatpacking industry by investing in local, tribal-owned and -operated meat-processing facilities can help mitigate food system shocks during times of crisis as well as strengthen tribal food sovereignty.

Tribal-Owned and -Operated Food Systems Are Pivotal

Even prior to the pandemic, Native Americans experienced some of the highest rates of food insecurity in the country, at least double that of white households, with variation by tribe (Jernigan et al., 2017; Sowerwine et al., 2019). This has only increased with pandemic challenges (Stranger-McLaughlin et al., 2021) and with the high dependency on social support services for food access and food security, due to the devastating legacy of settler colonialism on Native American tribes and communities (Sowerwine et al., 2019). Hoover (2020) argues similarly, “Even prior to the strain put on the food economy by the COVID-19 pan-

⁷ As of January 2021, 42,000 (out of an estimated 500,000) workers in meatpacking (slaughterhouse and processing) facilities had been infected with the novel coronavirus and 221 had died (Chadde et al., 2021).

demic, Native American communities have been fighting food insecurity. One quarter of American Indian/Alaska Native households receive Supplemental Nutrition Assistance Program (SNAP) benefits, 276 tribal nations administer the Food Distribution Program on Indian Reservations (FDPIR), 68% of AI/AN children qualify for free lunches, and AI/ANs make up more than 12% of the participants in the Women, Infants, and Children (WIC) nutrition program” (p. 569), with a 214% increase in FDPIR clients during the pandemic (Stranger-McLaughlin et al., 2021).

As the pandemic took hold, vital sources of food assistance (such as FDPIR and school lunch programs) as well as grocery stores were either scaled back or shut down, exacerbating food-insecurity trends and increasing vulnerability among many tribal communities. Over a third of tribal leaders said hunger had been aggravated in their community and important safety-net programs for children and adults (the school lunch program and FDPIR) had stopped functioning in up to a quarter of tribal communities surveyed. These program vulnerabilities are particularly concerning as Pindus et al. (2016) found that while FDPIR is meant to serve as a supplement to home food supplies, the monthly food supplement is the sole or primary source of food for 38% of households. Without this support many households would be in dire need of food. Data from our grocer survey confirmed a reduced supply of foods during the pandemic as well, with 75% of grocers saying that demand outpaced supply and 63% saying wholesale products were restricted or delayed.

One of the primary food assistance programs tailored to address food insecurity among federally recognized tribes, FDPIR, not only fell short during the pandemic, but chronically underserves tribal communities (Stranger-McLaughlin et al. 2021). In an effort to bolster the program in response to the pandemic, the third bill of the CARES Act included US\$100 million for additional food purchases and facility improvements for FDPIR (Hoover, 2020), although these funds were delayed, not applied to desired needs shared by tribal leaders and the National Association of FDPIR, and Tribal Nations were not able to use the funds to purchase directly from Native produc-

ers (Stranger-McLaughlin et al., 2021). While in 2021 the USDA Food and Nutrition Service (FNS) funded the FDPIR 638 Self-Determination Demonstration Project, which allows tribal organizations to contract directly with producers to provide food to FDPIR clients (IAC, n.d.-b), it was not enabled earlier in the pandemic. Additionally, the USDA, during the time of this writing, March 2022, is soliciting applications from state and tribal governments for the Local Food Purchase Assistance Cooperative Agreement Program (LFPA). This is a long-desired and anticipated goal of tribal communities to strengthen food sovereignty (Hipp & Duren, 2017; Mucioki et al., 2018). Almost 90% of grocers surveyed on or near tribal communities would like to purchase products directly from AI/AN producers, given the opportunity. Survey respondents shared tribal-led efforts to support the community through food boxes and fresh produce. Tribal-led, -owned, and -operated food systems have been pivotal to supporting community resilience during this period of crisis, and their even greater potential was untapped.

Opportunities for Investment


While this study presented many challenges and exacerbated stressors on AI/AN producers, communities, and food systems resulting from COVID-19, it also revealed community-led strategies for resilience and opportunities to support Native American food sovereignty and resilient tribal enterprises in practice and in policy. To better understand the experience of food insecurity and identify strategies to enhance resilience through comprehensive food system planning, three-quarters of tribal leaders would like assistance conducting food security assessments, while almost 34% had already conducted an assessment. The two areas of support most desired by Native producers included increased financing and/or funding (63%) and marketing support (50%), stressing the sustained need for better economic support and access to markets, since current pandemic relief programs for farmers overwhelmingly give preference to well resourced, white, male producers (Haqiqi & Horeh, 2021; Lioutas & Charatsari, 2021). Over half of respondents could benefit from rural broadband technology and expressed desire

for assistance with website development. There was also high interest in participating in courses related to market development, food safety, COVID-19 response, and transportation logistics, and a need for better access to information on USDA emergency relief programs. Government aid to AI/AN farmers has been perpetually lower than the national average even before the pandemic, with AI/AN-operated farms receiving US\$1,300 less than the national average of government payments to farms in 2017 and over US\$3,200 less than the national average in 2012 (USDA NASS, 2012, 2017a).

Additional priorities identified by Native producers in our surveys centered around increased technical assistance related to NRCS, direct marketing and branding, business development, understanding legal and policy issues, opportunities for enhanced networking, and strategies for new farmers to grow by strengthening connections between youth and natural resources programming. The top desired programs related to direct marketing were marketing and branding and trade show support. Producers using technical assistance had a greater desire for business development support. Young and beginning farmers prioritized resources related to legal and policy issues and food systems resources, whereas producers who already had access to extension desired additional resources related to networking and technical assistance. More than a quarter of producers desired NRCS support. There is a gap in connecting young farmers with NRCS support and opportunity for natural resources and youth programs to coordinate. Investing in opportunities to support organic certification would enable Native producers to garner increased profits. Organics are a growing sector, with sales of organic crops and livestock and poultry increasing by 38% and 44%, respectively, from 2016 to 2019 across the U.S. (USDA NASS, 2019). However, according to the 2017 Agriculture Census, only 3% of AI/AN producers reported having organic certification (USDA NASS, 2019), although the authors have observed many AI/AN farms that implement organic practices without having official certification.

Conclusion

The COVID-19 pandemic exposed just how vulnerable and underprepared the U.S. food supply chain is to major shocks. Producers were unable to source critical inputs and get their product to the market, while entire communities experienced skyrocketing rates of food insecurity as food and supply shortages swept the country. Families experienced job loss, children at home, fear associated with new uncertainties, and strict rules imposed to attempt to keep their communities safe. Federal food assistance social safety nets designed to ameliorate food insecurity, such as school lunch programs and FDPIR, fell critically short. Crises often shed new light on opportunities to enhance the resilience of systems impacted. The IAC took this opportunity to better understand how Native producers and communities were faring under the crisis, which resources they were able to access, and what opportunities there would be for investment in technical assistance and other programming to enhance economic viability and resilience. The findings suggest that not only did the pandemic exacerbate challenges Native producers and communities were already experiencing, but that there are many tribal-identified solutions that can be immediately invested in that would strengthen tribal food sovereignty, increase economic stability, and enhance long-term resilience. Investing in AI/AN agricultural enterprise development, local and traditional foods, tribal-owned and -operated processing facilities, and food sovereignty programs, especially in the realm of financing and marketing, are vital. Increasing resources and technical assistance to tribal communities through NRCS, FSA, and FRTEP are also important tribal-identified strategies to decentralize and create a more resilient food system rooted in self-governance. In 2018, 63 tribal specific provisions were included in the latest farm bill, some that addressed self-governance of food systems and security (Duren, 2020). Looking ahead to the 2023 farm bill, lessons learned from our study reflect many imperative needs, including agricultural support policies and set-asides for AI/AN producers for livelihood protection, as well as a continued utilization and expansion of opportunities for tribal

self-governance⁸ mechanisms across USDA programs and services. 

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More of the same? Migrant agricultural workers' health, safety, and legal rights in the COVID-19 context

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Abstract

In this paper, we report on research findings from a cross-sectional survey with 143 primarily Mexican migrant agricultural worker respondents in British Columbia (BC), Canada. Participants reported high rates of experiences of threats and violence by employers, limited faith in the follow-through of both Canadian and country-of-origin authorities when reporting concerns, and a unanimous lack of knowledge in how to file a claim of a legal matter (e.g., housing, human rights violation). Most partic-

ipants also reported that they believed they would receive poorer health care in relation to their Canadian counterparts and that their privacy would not be protected. While certain indicators, such as knowledge of resources for transportation, translation, and legal advocacy were higher than previous research would suggest, most participants did not feel confident that more serious issues would be addressed if they sought help.

Our results suggest migrant workers in BC report similar, or even higher, rates of experiences and expectations of poor social support, legal protection, and health care in comparison to prior research in this region and elsewhere. While further research would be required to confirm this hypoth-

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esis, the impact of COVID-19 on this population is undeniable. Our findings highlight the need for greater regional and provincial commitments to fund targeted services for migrant agricultural workers that address the unique barriers they face. Additionally, greater attention and funding must be dedicated to supporting this population to navigate and access services that already exist. Together, dedicated initiatives could make a major difference for this workforce. Federal investments in support services of this nature would ensure the sustainability of such efforts. In addition, reforms to temporary migrant agricultural programs, such as open work permits and immediate access to permanent residence, would better afford workers opportunities to access the rights and protections that are currently out of reach for many.

Keywords

Migrant Agricultural Workers, Health and Health Care, Safety, Legal Rights, Service Navigation, Social Support, Barriers, Seasonal Agricultural Worker Program (SAWP), British Columbia (BC), Canada

Introduction

The arrival and continued presence of COVID-19 has drastically changed the world. While all people have been affected, certain populations have been uniquely disadvantaged. In the Canadian context, this is particularly true for migrant workers involved in food processing and agriculture. With a focus on the migrant agricultural worker population in the interior of British Columbia, our research team administered surveys to 143 workers to identify their accounts of health, social, and legal challenges. This cross-sectional data, gathered during the 2020 agricultural season, suggest that this workforce is significantly disadvantaged in both accessing and navigating services and protections. These findings largely confirm prior research conducted with this population in this region and elsewhere (Hennebry et al., 2016; Colindres et al., 2021). Ongoing scholarship illustrates the unique systemic constraints that make it difficult for this population to seek help, navigate the healthcare system, or advocate for their rights. Our current findings lend weight to the notion that policy and

program reforms, together with community-based interventions, are required to support this population and uphold their rights. Under the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, the United Nations has asserted that migrant workers are a group requiring dedicated protection (United Nations, 1990). This group is uniquely at risk of exploitation and abuse due to the political and economic factors that precipitate migration and the lack of wide recognition of their rights and protections when working abroad. Despite a reliance on migrant labor in upholding food systems in the country, Canada has yet to sign onto and ratify this convention (United Nations, 2014).

One in five agricultural workers in Canada is a temporary foreign worker (Statistics Canada, 2020). Entering Canada under two main streams, the Seasonal Agricultural Worker Program (SAWP) and the Temporary Foreign Worker Program Low-Wage Agricultural Stream (TFWP-LAS), these tens of thousands of workers are essential to Canada's agricultural system and food supply. Their importance was highlighted when Canada's prime minister quickly announced an exception for migrant workers in agriculture to travel amidst international border closures in the spring of 2020, once the COVID-19 pandemic was identified as an international threat (Dubinski, 2020).

Scholars have long documented migrant agricultural workers' political, economic, and social marginalization in Canadian society. Among the key concerns identified are (1) unique barriers workers face accessing and navigating service systems; (2) work permits specific to one employer and temporary migration status that make it difficult for them to refuse unsafe work, report workplace abuse, and/or assert their rights; and (3) their virtual "deportability" should they become injured or raise concerns about their workplace treatment, living conditions, or basic human rights (Basok et al., 2014; Vosko, 2016, 2018; Caxaj, Cohen, Buffam et al., 2020; Caxaj, Cohen, & Marsden, 2020; Walia, 2010). Amidst these complex challenges, migrant agricultural workers are typically placed on farms in rural regions with limited ethno-cultural diversity, often resulting in racialized stigma and subtle and

overt experiences of discrimination. Despite the importance of their labor to the agricultural industry, racialized farmworkers are often left out of broader narratives extolling the virtues of locally produced food from family-run farms (Guthman, 2008). Taken together, we have previously argued that these conditions create lived and perpetual structural vulnerabilities, akin to “relentless border walls” (Caxaj & Cohen, 2021a), as they mark this workforce as temporary and expendable noncitizens by virtue of their ethno-cultural and migratory status. Furthermore, workers’ access to rights and services that they are afforded “on paper” are not fully accessed or actualized as a result of their entrenched social, political, and often geographic marginalization (see for example McLaughlin et al., 2014).

During the COVID-19 pandemic, thousands of migrant agricultural workers were exposed to the virus, with this group having one of the highest infection rates compared to other occupational sectors (Faraday et al., 2021). Since 2020, several migrant agricultural workers have died during their time in Canada, with at least seven individuals dying during the post-arrival quarantine period and several more since then (Caxaj et al., 2022; Mojtehdzadeh & Keung, 2021). Crowded and unsanitary conditions in employer-provided housing were major factors contributing to migrant workers’ susceptibility to contracting COVID-19. A lack of adequate ventilation, an insufficient number and condition of bathroom facilities, as well as a lack of enforcement of provincial housing standards have been well documented across Canada during the pandemic and before (Cole, 2020; Haley et al., 2020; Tomic et al., 2010). Another major barrier for this workforce when facing health challenges is that employers may act as gatekeepers and are often the only resource available for workers who require medical care (Caxaj, Cohen & Marsden, 2020; Hennebry et al., 2016; Landry et al., 2021). During the COVID-19 pandemic, this problematic dynamic was exacerbated by public health units that regularly liaised with employers and industry as their primary method to access migrant agricultural workers.

In this research article, we report on key findings of a cross-sectional survey conducted in 2020

with migrant agricultural workers in the Okanagan Valley region of British Columbia. The purpose of this study was to provide a description of migrant agricultural workers’ help-seeking and service navigation experiences and perspectives across health, social, and legal domains. These findings, considered together with prior research, lend weight to claims that migrant agricultural workers’ health, safety, and wellbeing continue to be poor. During the COVID-19 pandemic, these challenges have only been made more complex. These findings can help identify key service sector gaps as well as help-seeking and policy gaps that contribute to this group’s marginalization, with the aim of delivering services and protections that better meet the needs of migrant agricultural workers.

Review of the Literature

Access to Health Services

Researchers have previously documented migrant agricultural workers’ lack of access and limited ability to navigate existing health services. Factors include language barriers, geographic isolation, and social stigma and/or discrimination (Caxaj & Cohen, 2021b; Caxaj & Diaz, 2018; Hennebry et al., 2016; Pysklywec et al., 2011). Most notably, migrant agricultural workers are uniquely dependent on employers to help them with transportation and often language translation when seeking healthcare (Colindres et al., 2021; Hennebry et al., 2016). Furthermore, this relationship is normalized by program authorities, including foreign consular officials and federal agencies. Most practically this enables employers to act as gatekeepers and to wield their discretion in terms of whether a worker should or should not pursue care or report a workplace injury (Caxaj & Cohen, 2019; Cohen & Caxaj, 2018; Hennebry et al., 2016).

Scholars have also noted that occupational health protections offered to workers may exist more “on paper” than in practice as a result of limited measures taken to oversee workplace environments, as well as barriers posed by the nature of migrant agricultural programs (Cole et al., 2019; McLaughlin et al., 2014). Furthermore, previous surveys in Canada indicate that injured workers are unlikely to file reports that would enable them to

receive support or compensation despite their eligibility (Colindres et al., 2021; Hennebry et al., 2016). A prior study in BC indicated that half of respondents expected to receive inferior health care in comparison to their Canadian counterparts (Colindres et al., 2021), with similar findings reported in Ontario (Hennebry et al., 2016). Undermining many workers' ability to stay safe and healthy are justifiable concerns of repatriation or loss of employment that are inherent to their temporary and conditional status as workers in Canada (Hennebry & Williams, 2015; Orkin et al., 2014). Consequently, some workers may avoid seeking care, accept unsafe workplace conditions, or choose to not report a workplace injury in order to not threaten their relationship with their employer (Caxaj, Cohen, Buffam et al., 2020; Caxaj & Cohen, 2019).

Social Connectedness and Supports

Migrant agricultural workers report a limited sense of belonging in the communities where they work and live, and they may experience subtle and explicit discrimination in addition to geographic and social isolation (Caxaj & Diaz, 2018; McLaughlin, 2016; Vosko et al., 2019). Basok and George's (2021) research suggests that lack of labor mobility and separation from family are two important factors that limit migrant agricultural workers' sense of inclusion in Canadian society. These findings are consistent with prior research that has documented the profound role of familial separation in contributing to migrant laborers' poor mental health and wellbeing (Letiecq et al., 2014; McLaughlin, 2009). Others have argued that migrant agricultural workers' invisibility, and thus marginalization, is necessitated by contradictory agricultural rhetoric that situates food production as an inherently "local" practice (Lozanski & Baumgartner, 2022). Notions of the idyllic "family farm" and agricultural exceptionalism can further normalize substandard conditions and treatments of migrant agricultural workers as necessary sacrifices toward this ideal (Weiler et al., 2016). In sum, the structural elements of the temporary migration program, ideas that invisibilize migrant workers' role in food production, as well as their limited labor mobility and geographic discrimination and

stigma all contribute to their exclusion from Canadian society.

Vulnerabilities linked to migrant agricultural workers' participation in temporary migration programs structure and limit their social lives and their opportunities to build connections with the wider community (Basok & George, 2021; Horgan & Liinamaa, 2017; Preibisch, 2004). This exclusion is often felt along racial and citizenship lines and may include heightened surveillance and scrutiny, threats, or fear of deportation (Basok et al., 2014; Caxaj & Cohen, 2021a; Caxaj, Cohen, & Marsden, 2020; Faraday, 2012). Furthermore, some employers may control workers' movements and sociability, practically restricting workers to their employer's property (Caxaj & Cohen, 2019; Cohen & Caxaj, 2018; Horgan & Liinamaa, 2017; Perry, 2018; Smith, 2015). Fuelled by fears of deportation or other punishments, rivalry and competition—which may even be instigated along racial lines (e.g., workers from one country vs. those from another)—undermine solidarity and support among migrant workers (Binford & Preibisch, 2021; Juárez Cerdi, 2010; Preibisch & Encalada Grez, 2010). This workforce often struggles to establish social networks, since they are afforded few opportunities to build friendships and familiarize themselves with programs and services beyond their worksite (Basok, 2000; Caxaj & Diaz, 2018; Juárez Cerdi, 2010).

Practical difficulties such as language barriers, limited internet coverage, lack of access to a vehicle or public transportation, and poor cell phone coverage can further limit workers' ability to stay connected to people and resources away from their work site (Cohen & Caxaj, 2018; Cole et al., 2019; Hennebry et al., 2016). Furthermore, formal services that are in place often lack the flexibility and cultural safety practices necessary to ensure this group's access and comfort navigating these services (Curtis et al., 2019; Schill & Caxaj, 2019). While informal volunteers, churches, and nonprofit services and targeted clinics may provide more appropriate aid to this population, support is often ad hoc, volunteer-run, and/or underfunded. In many regions, these supports are not available at all (Caxaj & Cohen, 2021b; Caxaj, Cohen, Buffam et al., 2020).

Legal Rights and Protections

Migrant agricultural workers face a number of barriers when trying to access legal rights and protections. Their temporary legal status precludes them from full access to the benefits and protections afforded to permanent resident and citizen workers, and their restricted work permits tie them to a single employer and limit their labor mobility and willingness to report abuse (Faraday, 2012; Marsden, 2018; Strauss & McGrath, 2017). Prior research has demonstrated that migrant workers are often unaware of the rights and protections they have, and they lack an understanding of how to file legal claims or complaints (Colindres et al., 2021; Rodgers, 2018). This, combined with a major dearth of legal services aimed at the migrant worker community, results in a real lack of access to justice for this population.

Another major barrier for migrant workers pursuing labor rights is the complaint-driven process for reporting abuse or unsafe conditions that places the burden of reporting on the worker (Caxaj & Cohen, 2019; Marsden et al., 2020; Vosko et al., 2019). Many reporting mechanisms are not available in the languages workers speak, and there is often limited follow-up with the complainant when reports of abuse are made. Workers also may choose not to report workplace violations or abuse due to a fear of losing their employment (Migrant Worker Health Expert Working Group, 2020). These fears are not unfounded as Mexican agricultural workers who supported labor unions have been blacklisted from the program (Vosko, 2016, and hundreds of workers who became injured or ill were repatriated (Orkin et al., 2014). This deportability (Basok et al., 2014; Vosko, 2018) creates a climate of coercion where workers endure abuse, harassment, and labor violation, yet often do not complain or report abuse because of the fear of losing their livelihood. Taken together, these factors create a complex set of obstacles for migrant workers wishing to pursue justice.

Study Background

Cross-sectional data collection in 2020 was developed as one component of an intervention study funded by the Vancouver Foundation that followed migrant agricultural workers' health, safety,

and legal access trajectories over a two-year period. We developed and implemented a support model intervention working closely with settlement organizations and a migrant-rights legal clinic. This intervention consisted of an outreach worker and a legal advocate who provided support and services to migrant agricultural workers in the Okanagan region over two years. The outreach worker focused on building relationships, bridging access to services through information-seeking, referrals, and accompaniment, as well as organizing community-building events and initiatives (e.g., soccer tournaments, workshops). The legal advocate focused on providing legal advice, navigation, and representation to migrant agricultural workers on a variety of legal issues, including injury compensation, human-rights abuses, migratory needs, and employment standards.

Our study faced a few challenges. For one thing, as our baseline data were gathered in 2019, and the second year of data collection was in 2020 at the start of the COVID-19 pandemic, it was impossible to ensure continuity in our sample from year 1 to year 2. Further, comparisons between our cross-sectional data gathered from each year posed challenges because of the undeniable history effects posed by COVID-19 (Mara & Peugh, 2020). Nonetheless, in qualitative research conducted before the pandemic, we captured promising trends in help-seeking by migrant workers that suggest that the availability of these services have made a strong impact on this population (Caxaj & Cohen, 2021c; Cohen & Caxaj, 2022). Yet there is a timely need to capture indicators and the degree of challenges as they have been uniquely experienced by migrant agricultural workers during the COVID-19 pandemic. Thus, we are presenting our 2020 survey results as stand-alone, cross-sectional data that provide important insight into the challenges faced by migrant agricultural workers given our "new normal" of the current pandemic context. In our discussion, we will explore potential implications of these findings in relation to prior survey research conducted with this population, both from Ontario and our own work over the 2019 season.

Research team members all brought significant experience working with migrant agricultural work-

ers and/or Latin American populations. The research assistant, a native Spanish speaker from Mexico with a family history of working in agriculture, led recruitment and survey administration. Co-leads on the project brought over 15 years of combined experience working directly with migrant agricultural workers, both through research and support-service provision. Organizational research partners, including a settlement organization and legal advocacy organization, brought additional support by helping spread the word about the research study and providing feedback and guidance on survey items and knowledge-mobilization strategies following from the analysis.

Research Methods

Survey Instrument

We developed a survey to assess migrant agricultural workers' experience, knowledge, attitudes, and perceptions of health, social, and legal services in British Columbia. Survey content was developed based on themes identified by prior research of migrant agricultural workers in Ontario (Hennebry et al., 2016), and British Columbia (Caxaj & Cohen, 2019; Caxaj & Diaz, 2018; Cohen & Caxaj, 2018), and input on question development and translation was provided through consultations with migrant agricultural workers and their support networks. The final instrument assessed workers' experiences using dichotomous yes/no questions. Knowledge, attitudes, and perceptions were assessed using 5-point Likert response scale questions. The team collected feedback on the survey after the first year of data collection (2019), and based on the feedback, added additional questions to the version of the survey delivered the following year. The final survey is available upon request from the authors.

Sample

Between May and November 2020, the survey was administered to a sample of migrant agricultural workers throughout the Okanagan region of British Columbia. A snowball sampling technique was employed, using recruitment by outreach volunteers in public spaces frequented by migrant agricultural workers (e.g., grocery stores, shopping centers). The survey was administered by a bilingual

and bicultural research assistant. All COVID-19 safety recommendations applicable at the time were adhered to during these in-person meetings. During survey administration, the research assistant explained the survey instructions and consent information, describing the voluntary and confidential nature of the survey and stressing that help and support services would not be contingent on participation.

Survey Analysis

From the potential participants who were approached (162), 160 agreed to a one-on-one administration session of the survey. Two individuals did not provide consent after the research assistant read the survey instructions and consent information. For the purposes of this analysis, questionnaires that were not repeat respondents in the same year and with fewer than two missing items for each construct were considered valid, for a total of 143 valid surveys. Research assistants entered and coded the survey data to the Qualtrics XM Platform. The data were exported and analysed using SPSS (version 11.5). Frequencies and descriptive statistics were computed for all survey items, and a subset of surveys was rechecked for accuracy in data entry.

Demographics

Our study sample included 158 respondents, from whom 143 responses were considered valid (see Table 1). Of these 143 participants, 3 (2.1%) were female, and 131 (91.6%) were male, with 9 responses missing. The vast majority ($n=142$, 99.3%) were Mexican workers, with only a single respondent (0.7%) from Jamaica. Of these respondents, 89 (62.2%) identified as Indigenous, 37 (25.9%) identified as "partially Indigenous," and 16 (11.2%) did not identify as Indigenous. Most participants disclosed that they were participants of the SAWP, while a few came under the TFWP-LAS.

Findings

Discrimination, Violence, and Belonging

Of the 143 participants sampled, 54 (38%) reported experiencing discrimination due to their

Table 1. Demographics

Factors	n	%
Sex		
Male	131	91.6
Female	3	2.1
TOTAL	134	93.7
Age		
<25	1	0.7
25–34	29	20.3
35–44	56	39.2
45–54	42	29.4
55–64	15	10.5
TOTAL	143	100.0
Years worked in Canadian agriculture		
First season	5	3.5
2–3 years	13	9.1
4–5 years	19	13.3
6–10 years	40	28.0
11–15 years	46	32.2
16–20 years	14	9.8
More than 20 years	5	3.5
TOTAL	141	99.3
Country of Origin		
Jamaica	1	0.7
Mexico	142	98.6
TOTAL	143	100.0
Self-identification		
Indigenous	89	62.2
Non-Indigenous	16	11.2
Partially Indigenous	37	25.9
TOTAL	142	99.3
Level of Education		
No school	4	2.8
Primary school	49	34.3
Junior high school	68	47.6
Completed high school	17	11.9
Technical training/college	3	2.1
University degree or higher	2	1.4
TOTAL	143	100.0

Frequency (n) and relative percentage (%) by category of response. Missing data: sex (9 cases), years worked in Canadian agriculture (2 cases), and self-identification (1 case).

race or nationality. More than one in four participants ($n=38$, 26.5%) reported being threatened or intimidated by their employer. Furthermore, 14% ($n=20$) reported being assaulted by a workplace superior (employer, supervisor) in the past 5 years working in Canada. Notably, 110 participants (76.9%) disagreed or strongly disagreed with the statement “I feel included in Canadian society while I work in Canada.”

Workplace Risk, Injury, Training, and Safety

Almost all participants (92.3%) responded that they believed their job in Canada posed a risk to their health, with 69.2% considering this risk large. Of all respondents, 23 participants (16.1%) reported that they had been injured while working in Canada. Of these injured workers ($n=23$), 12 (52%) reported that they could no longer work that season as a consequence of their injury, 11 (49%) could not sustain the same level of productivity, negatively impacting their livelihood (e.g., hours put in, speed), and 5 (22%) were repatriated, losing their source of income entirely.

Fewer than half of the migrant agricultural workers surveyed ($n=62$) confirmed that they had received workplace safety training (43.4%). Among these 62 respondents, the length of training varied greatly, with 15 (24.2%) reporting training time of less than 20 minutes, 16 participants (25.8%) reporting 20 to 40 minutes, and 18 (29%) reporting 40 to 60 minutes. Only 13 respondents (21.0%) reported 1 hour or more of training. Of the 62 workers who did receive workplace training, 42 (57.7%) felt that the training prepared them little to not at all to stay safe at work.

Of all the respondents, 93 (65.0%) felt that they would be a little able, or not at all able, to stay healthy and safe while working and living in Canada, with 69 (48.3%) feeling that their employers had done little to nothing to prevent them from being infected with COVID-19. Finally, 10 (7.0%) felt that the restrictions put in place by their employers limited their freedom.

Service Navigation

In regard to help-seeking, respondents’ answers were least consistent with prior research conducted in the region (see discussion). Only 3 respondents

(2.1%) reported not knowing who to reach out to for support with translation, and only 5 participants (3.5%) stated that they did not know who to contact to get help with transportation. Only 6 participants (4.2%) disagreed or strongly disagreed that there were enough support people available to help them assert their rights. Furthermore, well over half of participants ($n=87$, 60.8%) had received services from a support group during their time in Canada. Support groups were defined as both formal and informal organizations that provided targeted services for migrant agricultural workers. Almost all participants ($n=140$, 98.6%) agreed that they would continue to stay in touch with a support person, if one were available, until a serious issue was resolved. Yet in striking contrast, of the 143 survey participants, only 12 participants (8.4%) agreed or strongly agreed that they would get the help they needed if a serious problem arose.

Justice-Seeking, Reporting, and Enforcement

Of participants surveyed, 125 (88.8%) reported not knowing what rights they had as workers in Canada (e.g., labor or housing rights). Close to 4 in 10 respondents ($n=57$, 39.9%) disagreed or strongly disagreed that reporting problems to Canadian authorities would contribute to greater protection for themselves or their co-workers. Migrant agricultural workers viewed consular officials from their countries of origin as even less reliable channels for protection, with 80.4% of respondents disagreeing or strongly disagreeing that these officials would take their concerns seriously. Notably, 60.8% of respondents ($n=87$) reported that their work site had not been visited by a Canadian government inspector in the last 2 years. Almost all respondents ($n=140$, 97.7%) felt that they did not have the same rights as Canadians while working in Canada. Despite these feelings of marginalization, over half of respondents ($n=72$, 50.4%) stated that they would report workplace mistreatment or assault to Canadian authorities. Furthermore, 66.5% ($n=95$) affirmed an intention to report unsafe or unhealthy work conditions to their country-of-origin officials (i.e., consulates). These high rates of intention stood in contrast to the fact that all participants (100%) disagreed with the statement “I know what steps I need to take to start a

claim that I am entitled to make [elaborated through examples of workplace injury compensation, housing violations, etc.]”

Accessibility and Confidentiality of Health Services

Across several survey items, migrant agricultural workers expressed a lack of faith in the Canadian healthcare system. For example, 91 (63.6%) reported that they did not agree that they would receive the medical attention they needed in Canada. Strikingly, 137 respondents (95.8%) stated that they disagreed or strongly disagreed that they would receive the same quality of care as Canadians, while 108 (75.5%) disagreed or strongly disagreed that healthcare providers understood that their health issues could affect their employment. When asked if they felt confident that their medical information would not be shared unless the respondent provided consent, over half of participants ($n=75$, 52.5%) disagreed or strongly disagreed. Roughly two-thirds of participants ($n=95$, 66.4%) disagreed or strongly disagreed that staff, including medical staff, took time to explain next steps in their care or support. The majority of participants ($n=125$, 87.4%) also reported not knowing how to share information with medical professionals or support people.

Respondents were asked if they had sought medical assistance due to illness or injury in the previous 5 years. Fifty participants (35%) stated they had. Within this subgroup, 7 (15%) paid for their healthcare out of pocket, 33 (66%) reported that their employer or supervisor was their translator when receiving care, and 23 (46%) reported that they had not been afforded privacy from their boss or supervisor during their medical visit. Of the 33 participants who received translation by an employer or employer representative, only two (6%) were offered the option of an independent translator.

Discussion

Discrimination, Violence, and Belonging

Our data suggest several areas of concern for migrant agricultural workers. Race and country-of-origin-based discrimination and threats or intimi-

dition and assaults by a boss or supervisor were reported by a sizeable group of participants. This is fairly consistent with the results from a survey undertaken during the 2019 season in the same region in which 31.3% of participants reported experiences of discrimination, 21.8 % reported threats or intimidation by employers, and 15.1% reported employer or supervisor assault (Colindres et al., 2021). Similarly, Hennebry et al.'s 2016 research in Ontario found that more than 25% of migrant agricultural worker respondents considered their employer to be "aggressive." Consistency in reporting across regions and time periods suggest that reported rates of discriminatory and violent incidences as experienced by migrant agricultural workers are reliable. Ideally, further research should employ the probabilistic sampling required to indicate the true rate of occurrence of such incidents among this population. Unfortunately, this is difficult to implement with such a transient and marginalized population for which the data are not available from authorities to create an accurate sampling frame.

Particularly concerning is the fact that one in four individuals reported experiencing intimidation or threats by a boss or supervisor, a finding that aligns with prior literature in Canada (Colindres et al., 2021; Hennebry et al., 2016). Furthermore, workers' fear of deportation (Basok et al., 2014), temporary status, and reliance on employers to "re-name" them to return in subsequent seasons illustrate the context of precarity that this population navigates. This may indicate that employers, in both subtle and direct ways, are reinforcing these points of vulnerabilities through threats and intimidations. Incidents of aggression and intimidation have also been observed through research conducted in the United States, with processes of racialization enforcing mistreatment, especially among Triqui Indigenous-identified migrant workers (Holmes, 2013).

Of participants surveyed, 76.9% disagreed or strongly disagreed with the statement "I feel included in Canadian society while I work in Canada." This finding contrasts with 2019 survey data from the same region, where 57% of respondents reported the same. Qualitative research has documented migrant agricultural workers' exclusion

from wider society, suggesting complex social and political discourses, as well as workplace control and surveillance in reinforcing this marginalization (Caxaj & Cohen, 2019; Cohen & Caxaj, 2018; Basok & George, 2021; Horgan & Liinamaa, 2017; Perry, 2018). Recent accounts of migrant agricultural workers' heightened surveillance, isolation, and experiences of xenophobic attitudes (Haley et al., 2020; Hennebry et al., 2020) strongly suggest that exclusion may be heightened amidst the COVID-19 context.

Most of our predominantly Mexican sample identified as Indigenous. Consistent with prior research in BC (Otero & Preisbisch, 2015), these demographics represent a higher proportion of Indigenous-identified people than the general Mexican population (Instituto Nacional de Estadística y Geografía, 2015). While we did not prompt workers to identify their specific ethnic affiliation, many did share their Indigenous group, with the most common being Maya, Nahuatl, Zapoteco, and Otomí. In line with Holmes' (2013) work that explored the experiences of Indigenous Triqui farmworkers in the U.S., our findings point to the need for further research to investigate how experiences of discrimination, violence, and belonging may be shaped by Indigenous status and specific group affiliations.

Workplace Risk and Injury Trajectory

The vast majority of participants believed their work in Canada put their health at risk, with most participants agreeing that this risk was large. This is notable given that research conducted in Ontario with migrant agricultural workers found that 52% of respondents considered their participation in a temporary migrant program to be hazardous to their health, while 72% found not knowing the English language hazardous to their health (Hennebry et al., 2016). Among respondents in our survey who reported experiencing a workplace injury in the past five seasons ($n=23$), 12 could not work as a result, 11 could not work at the same speed or for the same number of hours, and 5 were sent back to their country of origin (repatriated) and lost their ability to earn an income in Canada. Prior research indicates that medical repatriation is a common occurrence among injured migrant agri-

cultural workers (Orkin et al., 2014). This poses a serious threat not only to workers' ability to sustain their source of income in their current season of employment, but also to return to work in Canada in subsequent seasons. Furthermore, migrant agricultural workers face many challenges accessing compensation for workplace injuries, including language barriers, lack of knowledge of entitlements, and employer gatekeeping (Rodgers, 2018; Vosko et al., 2019).

Our prior research also suggests that clinicians often do not initiate compensation claims for migrant agricultural workers, perhaps because of a false assumption that they are ineligible (Caxaj, Cohen, & Marsden, 2020). These many barriers for injury compensation are exacerbated if workers return to their countries of origin. Further research is required to consider the help-seeking strategies employed by this population and the strategies offered by service providers in addressing workers' reduced income if their productivity is decreased as a result of injury during their time in Canada.

Given that most migrant agricultural workers consider their employment a large risk to their health, investment in prevention strategies in the workplace may be well received by this population and warrant further investigation. This is especially the case in the Canadian context, where occupational health research with this population has largely lagged, especially in comparison to the international literature. Fewer than half of the participants confirmed that they had received any workplace safety training, and the duration of training had varied widely (e.g., from 20 to over 60 minutes). Furthermore, of those who did receive training, most considered it insufficient to keep them safe and healthy at work. This highlights the need for improvements in workplace health and safety training for this workforce. The discrepancy between respondents in terms of their confidence in training received to keep them safe (higher) versus healthy (lower) suggests that a priority assessment of areas of health and safety promotion should be conducted to better assess this workforce's needs in this regard.

Few participants believed that the COVID-19 restrictions put in place by their employer restricted their freedom. This is notable given the high-

profile cases that have suggested the contrary in the news in the past two years. Part of this perception may be explained by qualitative research findings that suggest that because of the precarious and temporary nature of employment, migrant agricultural workers may not only contribute to their own segregation and mobility restrictions, but also, internalize the need for this behavior in order to try to prevent possible deportation (Basok et al., 2014; Perry, 2018). Taking this finding more at face value, it may indicate that migrant agricultural workers accept the need to restrict their movement as a result of the risk posed by COVID-19 to their health and farm operations and their own livelihood.

Service Navigation

Our findings stood in contrast to previous research findings (Colindres et al., 2021), since most respondents felt confident that there was someone they could reach out to for help with translation, transportation, or for legal advocacy. Furthermore, while only 15.1% of participants indicated receiving help from a support group in previous surveys (Colindres et al., 2021), 60.8% of 2020 respondents reported the same. This suggests that the launching of the support model intervention (described above; see also Cohen & Caxaj, 2022) provided participants with a viable option for these resources, as no formal services existed in the region beforehand. Further research would be required to test this hypothesis.

Consistent with previously published 2019 data in the region (Colindres et al., 2021), the vast majority of participants (98.6%) also reported that they would continue to work with (e.g., communicate, meet with) a support person until a serious problem were resolved. Yet in contrast, only 12 participants (18.4%) agreed or strongly agreed that they would be able to get the help they needed if a serious problem arose. This suggests that despite the strong visibility of support people across domains of transportation, translation, and legal rights, migrant agricultural workers continued to lack confidence that their serious issues could be addressed. A willingness to stay in touch with support people suggests that workers had intentions to maintain lines of communication even if they doubted the

ability of service providers to address their more complex needs.

These responses raise many questions in terms of what types of support, if any, can address the main challenges and threats faced by migrant agricultural workers. Our prior qualitative examination of migrant agricultural workers' access to supports and services, both before and during the COVID-19 pandemic, identified three key contextual factors that limited the extent to which supports could be actualized for this group. These factors include: (1) *onus on workers* to identify and report concerns, and consequently, take on related risk to assert their rights to dignity, health, and safety; (2) *pater- nalism and control* that both enforce and normalize employer gatekeeping and surveillance, often shaping how health and social services are offered; and (3) *system-enabled vulnerabilities* through limited infra- structure and/or funding for existing services and an underinvestment in prevention measures, in- cluding enforcement (Caxaj & Cohen, 2021a; Cohen & Caxaj, 2022). It may be that although support persons were known and visible to migrant agricultural workers, larger factors (such as those described above) kept participants from feeling truly able to follow through, or benefit from, the skill sets offered by these support persons.

Other scholars have identified broader political mechanisms, such as deportability, temporary sta- tus, limited entitlements and access to rights, and the nature of work permits that are employer- specific ("tied") and often contingent on employer nomination ("being named back") as key factors that contribute to workers' unfreedom during their time in Canada (Strauss & McGrath, 2017; Vosko, 2016). Furthermore, a broader geopolitical climate can also incentivize conformity or silence sur- rounding health and human rights violations because of a lack of economic opportunities for migrant agricultural workers in their countries of origin (Binford, 2013). Considering these wider factors infringing upon workers' mobility and free- dom during their time in Canada, policy and politi- cal solutions are required before this population can more fully benefit from support services.

Justice-Seeking, Reporting, and Enforcement

Survey responses indicate that participants held

limited confidence in both Canadian officials and their country-of-origin representatives, with 4 in 10 participants lacking confidence that reporting issues to Canadian authorities would lead to greater protection for themselves or their co-workers, and 80.4% disagreeing that foreign consular officials would take their concerns seriously. In comparison to prior research in the region (Colindres et al., 2021), these respondents reported higher rates of disagreement that authorities would address their concerns. Given various accounts of greater pre- carity and legal uncertainty faced by migrant agri- cultural workers in the COVID-19 context, limited confidence in authorities' ability to respond and protect this workforce is not surprising. Prior research in the Canadian context also indicates that a significant number of workers report poor and hazardous working conditions, including limited access to water, toilets, and personal protective equipment (PPE), and lack of protection from pes- ticides (Hennebry et al., 2016). So long as these conditions persist, hesitance and/or a lack of confi- dence to report to authorities will further entrench the inequitable conditions faced by this group.

Of particular note, almost all participants felt they did not enjoy the same rights as Canadians (97.7%) and all participants surveyed (100%) disa- greed that they had the knowledge to start a legal claim. Despite this, roughly half of participants stated that they would report workplace mistreat- ment or assault to Canadian authorities, and over half the participants expressed a willingness to report hazardous or unhealthy conditions to their foreign government representatives. Yet the major- ity of participants stated that they did not know what rights (e.g., labor and housing rights) they had as workers in Canada, raising questions as to what exactly participants would be able to effectively report to authorities. These reports were compara- ble to prior research in the region (Colindres et al., 2021), although this group of respondents did indi- cate less inclination to report workplace mistreat- ment to both foreign and Canadian authorities, and none (versus 11.7%) believed that they had the knowledge necessary to start a legal claim. Con- sistent with a 2019 survey conducted in the same region (Colindres et al., 2021), our findings suggest that there is a strong willingness among many par-

ticipants to report concerns to authorities. However, a lack of knowledge of their rights and the procedures required to file claims may pose obstacles to pursuing justice for this group. Likewise, surveys conducted in Ontario with this workforce found that only 22% had been given information about their healthcare entitlements, and 93% reported that they did not have knowledge of workplace safety insurance, creating a fundamental obstacle to them accessing injury compensation (Hennebry et al., 2016). Further research is required to consider the ideal ratio of legal advocates to migrant agricultural workers, and given the complex legal challenges they face, how to implement effective mechanisms, such as cross-sectoral partnerships, to best deliver these services (League et al., 2021).

Accessibility and Confidentiality of Health Services

Specific to the group of participants who sought medical care among our sample, the number who reported paying out of pocket for medical procedures and who did not have access to independent translation largely aligned with 2019 survey results (Colindres et al., 2021). Similarly, research in Ontario found that roughly half of workers encountered communication barriers when accessing healthcare, with those not fluent in English relying on co-workers and volunteers to communicate with clinicians (Hennebry et al., 2016). While we asked respondents specifically about relying on a boss for translation, and many confirmed that this was the case, these reports did not perfectly coincide with levels of privacy reported by participants as we would have assumed. Further qualitative inquiries would be required to understand the notion of privacy and confidentiality as understood by this population, and within this unique lived context. It is possible that notions of privacy may be defined differently across cultures, or workers may view employer mediation in healthcare as a necessary component of their restricted work permit.

Overall, survey responses suggested that many participants lacked confidence in the healthcare system and related supports. The majority of participants did not know how to share information

with healthcare professionals and support people, and did not believe they would receive the medical attention they required in Canada. In addition, most disagreed that they would receive the same quality of care as Canadians. Respondents also did not believe that healthcare professionals understood that health issues could affect their employment, and lacked confidence that their medical information would be kept confidential. In contrast to cross-sectional survey findings in 2019 with a similar sample (Colindres et al., 2021), survey respondents in this study reported lower expectations and less knowledge across all the above-mentioned indicators. This suggests that these areas have remained areas of concern for migrant agricultural workers and also raises the question about whether this population's confidence in the healthcare system has decreased. Well-documented factors such as a move to digital and telephone-provided healthcare support, a more burdened healthcare system, and clinician burn-out because of COVID-19 that have negatively affected patient care, especially among underserved and racialized populations, lends credibility to this hypothesis.

Most notably, almost all participants believed that they would not receive the same quality of care as Canadians (95.8%) and stated that they did not know how to share information with medical professionals (87.4%). In comparison, prior research in Ontario indicated that only a slight majority (50.7%) believed that their healthcare treatment was inferior to permanent residents (Hennebry et al., 2016), and prior research in this same BC region indicated that 60.3% of respondents did not believe they would receive the same quality of care as Canadians (Colindres et al., 2021). Likewise, prior Ontario research found that 43% of migrant agricultural workers reported confusion regarding medical procedures related to their health concerns (Hennebry et al., 2016). In the current COVID-19 context, where issues of workplace compensation and income loss are well-known (Jagger, 2022), it is also important to note that 75.5% of participants did not feel confident that clinicians understood that health issues could affect their employment. Findings across these studies indicate that continued barriers in healthcare access, navigation, and confidence in the healthcare system are likely

became more entrenched during the COVID-19 pandemic.

Limitations, Conclusion, and Implications

A few study limitations should be considered.

Firstly, as the research assistant who conducted data collection became known to participants, it is possible that the rapport that developed could contribute to social desirability bias. Nonetheless, several responses, such as 100% of respondents stating that they did not know how to start a legal claim, would suggest that impression management was not a strong factor (Lajunen & Summala, 2003). Furthermore, it is likely that the relationships of trust established between the research team and the participants were important factors in migrant workers' willingness to participate and stay in touch with the research team over several seasons. Secondly, the study relied on a convenience sample because this population is hard to reach, and no sampling frame was available to us. While we recruited participants from general spaces where most migrant workers might go (e.g., grocery stores, shopping centers), it is likely that those we were unable to reach experience even greater barriers. Future research should explore options for probabilistic sampling with this population. Lastly, although we asked participants about their Indigenous identity, no questions probed into experiences that may be informed by this social and political status, and we did not ask respondents to state their affiliation with any specific cultural group, although some volunteered this information. Future research could follow Holmes' (2013) work and examine the experiences of Indigenous migrant agricultural workers enrolled in temporary work programs in Canada, and seek to understand if particular cultural identities determine differing experiences.

Our findings suggest that the COVID-19 pandemic has negatively impacted migrant agricultural workers' experiences accessing health, social, and legal services and supports. Furthermore, these results support previous research that has shown that migrant agricultural workers are highly vulnerable and precarious due to complex structural issues and a significant lack of supports and services designed for them. Key areas of concern

identified in this research include a high reported rate of experiences of threats and violence by employers, a lack of confidence in both country-of-origin and Canadian authorities, and a unanimous lack of confidence in reporting concerns of a legal matter. The majority of participants also reported a lack of faith in the healthcare system, responding that they expected that care provided would be inferior to their Canadian counterparts and that their privacy would not be protected. On a positive note, most participants reported knowing how to get help with transportation, translation, and asserting their rights—a finding which followed the launch of the first legal and outreach support model for this population in the region in the fall of 2019. On the other hand, most respondents reported that they did not expect that they would get the help they needed if a serious issue arose, despite their willingness to maintain communication with a support person. Across several areas of concern, our survey participants reported more concerns about their health, social, and legal rights in comparison to prior research in the region and elsewhere.


The present findings support our previously published work (see Caxaj & Cohen, 2021a) outlining challenges and recommendations for establishing community-based support models for migrant farmworkers. Ultimately, support models such as the one we piloted in the Okanagan have great potential for meeting some of the major needs of migrant farmworkers: access to healthcare, transportation, social, and legal support. However, their ability to address larger factors that underlie migrants' vulnerability (such as precarious legal status) continues to be limited. Nonetheless, regional support models have the potential to improve experiences for migrant farmworkers, and by building inroads with migrant workers and service providers alike, transform services and food systems to better represent the priorities of migrant workers.

These findings point to several implications. First, more comprehensive and targeted legal advocacy services are needed to address and help workers navigate knowledge gaps in asserting their legal rights. Government investment in this type of support for migrant agricultural workers may provide

better opportunities for them to benefit from legal rights and protections that are currently out of reach. Second, regional programming, including the provision of independent translation, transportation, and service navigation, can combat migrant agricultural workers' isolation and provide for a more accessible and comprehensive service delivery experience.

Third, clinicians and service providers targeting migrant worker communities should receive training on the unique vulnerabilities and barriers faced by migrant workers, as well as their legal entitlements. Training especially should highlight the dangers of employers' gatekeeping or interfering in the medical care of workers, the need for confidentiality from employers, and the risk workers face of medical repatriation. Fourth, both federal and provincial governments must commit to enhanced mechanisms for oversight and enforcement of migrant agricultural worker programs. Changes should include increased unannounced and proactive inspections (to take the burden of reporting off workers), culturally appropriate and meaningful engagement with workers throughout the assessment process, and accessible tip lines in workers' preferred languages. To complement these strategies, strong antireprisal protections must be in

place to protect whistle-blowers. As current reports indicate, existing oversight mechanisms are woefully inadequate (Office of the Auditor General of Canada, 2021).

Last, to mitigate the potential for abuse and exploitation, work permits of migrant agricultural workers should be open and not contingent upon employment with a single employer. This would allow workers more labor mobility should they face poor treatment, harassment, or poor conditions on one farm. The introduction of the Open Work Permit for Vulnerable Workers in 2019 has proven to be insufficient because of the length of time it takes to receive a decision on an application as well as the lack of systematic financial and housing support available to applicants. For these reasons, permanent status upon arrival must be part of a political solution that can better afford workers access to full rights, protections, and justice. 

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Under the shadow of structural violence: Work and family dynamics for Latina farmworkers in southwestern Idaho

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Abstract

Latina farmworkers play an essential role as agricultural laborers while at the same time managing responsibilities at home. However, little attention has been paid to these women's lives, including how they manage the multiple roles they occupy. This is problematic in part because occupying multiple roles, particularly roles that may conflict with each other, can negatively influence well-being, including physical, mental, emotional, and economic well-being. In this research, we examine the

work-family interface for Latina farmworkers, asking: What factors shape the experiences of Latina farmworkers as they navigate the work-family interface? Building from a broader multi-method and interdisciplinary study, this paper utilizes interview and focus group data to examine Latinas laboring in the agricultural fields of Idaho. Findings suggest that many supports in the work and family domains (e.g., supportive co-workers, friends, and

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Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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family) can aid Latina farmworkers in fulfilling the various forms of labor they are responsible for. However, several family and work demands (e.g., single parenthood, difficult work hours and conditions) make it challenging for Latina farmworkers to fulfill the various forms of labor they are responsible for. Structural violence and intersectionality shape these women's experiences with both supports and demands in the work and family domains. Relatedly, we find that organizational, community, and geographic contexts shape the experiences of Latina farmworkers in fulfilling labor in the public and private spheres. In particular, race and gender, immigration and documentation status, community organizations, and rurality all shape the navigation of the work-family interface for these farmworkers.

Keywords

Gender, Latina Farmworker, Intersectionality, Rurality, Structural Violence, Work-Family Interface

Introduction

Across the U.S. and beyond, women are increasingly working in agriculture (Wright & Annes, 2016). Many factors have driven this feminization of agriculture, including changing norms around gender and work and shifts in rural labor markets. Idaho has one of the fastest-growing populations in the U.S. (U.S. Census Bureau, 2018.). As Idaho's population has grown, work opportunities have risen in more lucrative sectors of the economy, particularly construction (Idaho Department of Labor, 2019), which can be a draw for men who previously worked in agriculture (Meierotto & Som Castellano, 2019). Further, Idaho's dairy industry, whose workforce is predominantly Latinx, has experienced structural transformation and increased industrialization (Salant et al., 2017), drawing Latinos from fieldwork to dairy production. These transitions, in turn, provide fieldwork opportunities for women. In addition, at times women are considered 'flexible labor,' and some view women as being more reliable, more precise, and possessing a stronger work ethic (Meierotto & Som Castellano, 2019).

Farm work can provide income, meaning, social connection, and empowerment for Latinas (Meierotto & Som Castellano, 2019). At the same time, farm work can be dangerous and insecure (Holmes, 2013; Murphy et al., 2015). Farmworkers, including women, can have high stress levels, and agricultural work can be detrimental to physical and mental health (Arcury et al., 2018; Castañeda & Zavella, 2003; Habib & Fathallah, 2012).

In addition to their labor in the public sphere, Latina farmworkers are often responsible for most (if not all) of the household labor, including child-care. Family obligations can be of great importance among Latinx households (Kossek et al., 2005), where traditional gender roles often persist (Beutell & Schmeer, 2013). As Schmalzbauer notes, "Mexican women [living in the U.S.] today often live difficult, isolated lives while charged with ensuring their families' survival and well-being" (2014, p. 5).

The demands of farm work, which occur in the public sphere, may not be well-matched with other forms of labor for which Latina farmworkers are responsible, including gendered labor in the private sphere. This conflict between work and family domains can be detrimental to the well-being of this population, including physical, emotional, psychological, social, and economic well-being. However, despite the feminization of agriculture and the central role that Latinas play in the agricultural system, limited research focuses on the experiences of Latina farmworkers. Some scholarship has examined the experiences of Latinas in farmworking families, highlighting their marginalization, poor health status, health risks, and exposure to sexual harassment and assault (e.g., Arcury et al., 2015; Arcury et al., 2018; Castañeda & Zavella, 2003; Grzywacz et al., 2007; Habib & Fathallah, 2012; Kossek et al., 2005; Murphy et al., 2015). Yet, this literature rarely focuses on women whom themselves engage in fieldwork. Research on farmworker experiences also often focuses on farmworkers who migrate. However, farmworkers are increasingly settling in, including in Idaho, making homes and building communities (Meierotto & Som Castellano, 2019).¹ Given these trends, it is important to think about the work-life dynamics of

¹ Here we are referring to workers who labor outside of the H-2A system.

Latina farmworkers. Yet literature on work-family dynamics often centers the experience of white, middle-class, cis-gender families. In this research, we focus on the experiences of Latina farmworkers laboring in the fields of Idaho, asking: what factors shape the experiences of Latina farmworkers as they navigate work-family dynamics? This research is important given the central role that farmworkers, including Latina farmworkers, play in national and global food supply chains and the ways in which responsibility for multiple roles can influence well-being, including physical and mental health, economic opportunity, and safety. We hope this research can contribute to policy and programs supporting and protecting farmworkers, particularly Latina farmworkers, in the U.S.

Work-Family Dynamics for Latina Farmworkers

There is a broad literature examining work-family² dynamics, recognizing the critical ways in which the domains of work and family influence each other, creating conflict and enrichment (Kaufman & Taniguchi, 2020; McManus et al., 2002; Robinson et al., 2016). This literature has identified a range of factors that can shape experiences within and between these two domains. For instance, research has found that perceptions of time conflict can vary based on the presence of children and employment level (Stadelmann-Steffen & Oehrli, 2009), which may be particularly important for Latina farmworkers given that their occupational mobility is likely low. As Segura noted, “Occupational mobility or improvement in job status and income can be impeded by social and structural features of the labor market, familial responsibilities, and individual characteristics” (1989, p. 37). Single mothers can experience higher levels of work-family conflict, although some scholars have found that when controlling for variables like social capital and income, the effects of single parenthood on work-family conflict diminish (Ciabattari, 2002; Dziak et al., 2010). Scholarship has also found that work-family conflict can be more

significant for families with lower incomes (Ford, 2010). Together these findings suggest that attention to the experiences of Latina farmworkers and how they experience the work-family interface is important, given the many forms of marginalization and discrimination this population often experiences (Carney, 2015; Meierotto et al., 2020).

Demands and Supports in Work and Family

Scholarship on work-family dynamics has identified work and family demands and supports that may influence navigating roles within and conflict between these domains. Family supports include emotional, attitudinal, financial, and instrumental supports offered by those in the family domain (McManus et al., 2002; Shaffer et al., 2011).³ Family demands are associated with household responsibilities (like chores and childcare) and can influence hours at home, family expectations, and other family stressors that can influence work-family conflict (McManus et al., 2002; Shaffer et al., 2011). Formal work supports can include workplace policies and programs that support workers in meeting family demands, such as flextime policies, childcare provision in the workplace, and level of autonomy (McManus et al., 2002). Informal work supports are related to the attitudes and behaviors of those a person works with, including supervisors and fellow employees (McManus et al., 2002; Shaffer et al., 2011). Finally, work demands refer to the demands associated with a job and may include hours and time pressures, job expectations, flexibility in scheduling, and work location (McManus et al., 2002; Shaffer et al., 2011).

Research on work-family dynamics often focuses on white, middle or upper-class, cis-gender households with two parents and has not sufficiently focused on other groups (Beutell & Schmeer, 2014; Grzywacz et al., 2005; Grzywacz et al., 2007; Kossek et al., 2005; McManus et al., 2002; Powell et al., 2019; Robinson et al., 2016). In turn, traditional work-family conflict frameworks have typically been applied to “non-Hispanic Whites”

² While some relevant literature focuses on work-life rather than work-family, in this study work and family are the primary domains where women engage. For this reason, we are utilizing the language of work-family here.

³ Instrumental supports are tangible, such as providing financial assistance, offering someone a ride or meal, and assisting with finding a job. Attitudinal supports refer here to having family members with a positive attitude (McManus et al., 2002; Shaffer et al., 2011).

and, therefore, may not always be sufficient in framing the work-family dynamics for other populations (Glick, 2010), including populations who are more likely to face racism and institutional discrimination. Powell et al. (2019) call for greater incorporation of culture and diversity, including along the lines of race, ethnicity, and socioeconomic status, when considering work-life dynamics. The centering of other populations in work-family research is important because race and ethnicity can influence work-family conflict (Grzywacz et al., 2007). For instance, racism can shape the types of education and work people have access to, influencing the work domain, the family domain, and interactions between them. Further, the relationship between work and family life can vary by culture, including understandings about the purpose of work, the degrees to which these spheres are separate, and how work may contribute to the family and vice-versa (Hong et al., 2021; Lewis & Beauregard, 2018; Sayer & Fine, 2010).

Scholars have also called for greater consideration of context, including organizational, community, and geographic context (Christiansen et al., 2019; Lewis & Beauregard, 2018). In this paper, we similarly consider how context may influence the work-family dynamic. Organizational context can include unique features of farm labor, including the structural hierarchies on farms, work hours, the conditions of work, and the heavy reliance on immigrants, particularly Mexican-origin immigrants. The organizational context also involves considering the structural violence of this work, which we expand upon below. Further, we challenge the idea of flexibility as always being beneficial; the hours of fieldwork can be highly flexible, but this may make the work-family dynamic more rather than less challenging.

Community context involves considering the role of the community in shaping the work-family dynamic. For instance, living in an immigrant community, including one shaped by fears of deportation and, in turn, social and physical isolation, can influence access to and use of social supports (Meierotto et al., 2020). Moreover, geographic context challenges us to consider how rurality may shape the lives of marginalized women (Christiansen et al., 2019). A useful concept here is spatial

inequality, which focuses on how space and place influence life chances and experiences. Uneven development in rural parts of the U.S. has led to “differential distribution of industries, firms, and jobs across places and in turn, differences in social structural statuses that emerge as people make their livelihoods in particular places” (Kelly & Lobao, 2019, p. 673). Rural places tend to have fewer work opportunities, which may be particularly true for marginalized women (Schafft et al., 2018; Schmalzbauer, 2014), and rural work can involve long commutes to worksites (Christiansen et al., 2019). Further, many of the most dangerous occupations are in rural places (e.g., agriculture, mining). People living in rural places also tend to have lower levels of education, higher rates of poverty, and lower levels of access to social supports (Adua & Beard, 2018; Kelly & Lobao, 2019). Access to childcare, which can be important in helping women navigate work-family conflict, can also be limited (Stier et al., 2012). Finally, experiences with social isolation can be more significant for those residing in rural places and may be particularly acute for those experiencing other forms of marginalization (Schmalzbauer, 2014). These forms of marginalization can be contextualized within the framework of structural violence.

Structural Violence, Intersectionality, and the Context of Labor for Latina Farmworkers

While the concepts of work and family supports and demands can help frame how Latina farmworkers navigate the work and family domains, their experiences with labor in both the public and private spheres are shaped by various forms of marginalization they face, which may not be reflected in this framework. Here we use a theory of structural violence and the concept of intersectionality to further understand how Latina farmworkers may experience the work-family interface.

Latina farmworkers may be more vulnerable to work-family imbalance in part because of structural violence. Structural violence refers to “a series of large-scale forces—ranging from gender inequality to racism and power—which structure unequal access to goods and social services” (Farmer, 1996, p. 369, cited in Carney, 2015, p. 6). The concept of structural violence can help frame our understand-

ing of how social and economic forces, including the jobs available to women, the conditions of those jobs, their opportunities to receive social support and protection, and more, shape the experiences of Latina farmworkers as they navigate the multiple roles they perform in the work and family domains and the interactions between these domains. In addition, structural violence can influence the ways in which, or the degree to which, individuals are able to meet their own needs. For instance, it calls for us to consider how the “social machinery of oppression” (Farmer, 2004) can influence a woman’s ability to take care of her own health.

An intersectional approach provides additional explanatory power here. Initially developed by Kimberlé Crenshaw (1989, 1991), intersectionality asserts that multiple systems of oppression and marginalization intersect to shape life circumstances, including burdens and privileges. Latina farmworkers are subordinated within a global agri-food system that privileges profit over well-being, resulting in poor work conditions such as low pay, contingent labor, and long hours. Latina farmworkers are more likely to engage in this work because they are situated at the bottom of multiple hierarchies, including racial and gender hierarchies. They are further vulnerable because of their actual or perceived citizenship and/or immigration status (Holmes, 2013). These factors intersect to make them often unable to stand up for their rights. For instance, research has found a lack of enforcement of regulatory protections for Latina farmworkers, which some Latina farmworkers refuse to report because of their vulnerability (Curl et al., 2021).

Structural violence and intersectionality also shape the conditions of work for Latinas in the private sphere (Carney, 2015), including their gender-based responsibility for the care of the household and children, in addition to the work they perform in the public sphere. It shapes the ability of women to fulfill normative, gendered expectations around work performance, including what it means to be a good mom or a good wife. In addition, structural violence can influence access to safety nets, such as SNAP (food stamps). Such safety nets can help women manage the various forms of labor they engage in and, in turn, can influence work-family

conflict (Kossek et al., 2005). Structural violence can also increase physical and social isolation, limiting access to support from family, friends, or community organizations (Kossek et al., 2005).

Structural violence further shapes the dynamic relationship between these two domains. For instance, the early and often long hours of farm work may create challenges with childcare. The poverty often inherent in farm work due in part to the racialization of the U.S. workforce and the low wages paid to farmworkers also shapes where farmworkers can live, the conditions of housing, and their access to food.

Together, this literature suggests that Latina farmworkers live and work within a context of social and political marginalization, which shapes the demands and supports that influence their lives. This paper utilizes structural violence and intersectionality, which upholds the notion that Latina farmworkers face a unique set of supports, challenges, and contexts that collectively influence how they experience work and family dynamics.

Challenges navigating work-family dynamics can have important and often negative consequences for women and their families (Hardy et al., 2016; Poms et al., 2016). This may be particularly true for Latina farmworkers, who face a range of intersecting forms of marginalization. By highlighting the experiences of Latina farmworkers engaged in fieldwork in the Intermountain West of Idaho, we argue that supports and demands in the work and family domains are shaped by the structural violence facing our study population and the multiple identities they hold, undermining their overall experience and well-being.

Methods

Building from an ongoing ethnographic project, data for this research comes from an interdisciplinary study aimed at identifying challenges to well-being among Latina farmworkers. For this broader study, a research team consisting of three faculty members, one professional staff member, and three graduate students examined a range of factors influencing well-being among Latina farmworkers, including social, cultural, and workplace-related factors. We collected data via surveys, focus groups, semi-structured interviews, and urinary

biomonitoring.⁴ Given the nature of the inquiry presented here, we are presenting qualitative data collected through five focus groups with 22 women, interviews with 11 Latina farmworkers, and interviews with five farmworker advocates. Six of the women who participated in the focus groups also participated in one-on-one interviews. In these interviews and focus groups, we asked questions related to the challenges of navigating work and family life. In addition, some of the survey data collected are used to provide basic descriptions below of the women who participated in this research.

The farmworker interviews were semi-structured and focused on understanding women's experiences with farm work, including the benefits and challenges of this labor and how this labor related to family and other life responsibilities. For example, we asked questions like, "Do you have children? Can you tell us a bit about how you manage childcare?" Interviews with farmworker advocates aimed to capture the advocates' perceptions about challenges and resource availability and use. Focus groups involved discussions and activities to understand participants' definitions of well-being, the dimensions of well-being that were of greatest concern to them, and challenges in the work and family domains related to well-being. For example, we asked participants, "What challenges do you experience to your well-being?"

To participate in the study, women had to be 18 years of age or older and identify as Latina or Hispanic farmworkers. Women were recruited for participation in the interviews and focus groups when survey data was collected, via snowball sampling, contacts with advocacy organizations, and targeted posting of recruitment flyers. We gained IRB approval before data collection, and we obtained informed consent via a signed consent process.

The research team conducted interviews and focus groups between October 2018 and June 2019 with women 18 years and older across Southwestern Idaho who identified as Latina or Hispanic farmworkers. Interviews lasted between 45 and 90 minutes and were conducted at a location chosen

by the participants. Interviews occurred in either English or Spanish, based on participants' preferences. Focus groups occurred across rural Southwestern Idaho, most often in community centers. The focus groups were conducted primarily in Spanish. Members of the research team took notes to capture the main ideas discussed and the context of the interactions. Audio recordings were also used to capture this qualitative data. The notes and audio recordings were then translated into English as needed and transcribed.

On average, farmworkers interviewed were 42 (SD 13.8) years of age and had worked in agriculture for 15 years. Over 70 percent reported a household income of less than US\$34,999, and over 35 percent of respondents reported a household income of less than US\$20,000 per year. On average, they worked seven months of the year in agriculture. All but two reported having lived in their current residence for the past 12 months. The women who participated in the focus groups had an average age of 38.7 (SD 13.7), and 43 percent reported a household income below US\$20,000 per year. On average, they worked eight months in agriculture during the previous year, and all but two had lived in their current residence for the past 12 months. Farmworkers in the region generally work for contractors rather than for specific farmers, thus work on farm type and size varied for women throughout the years and seasons. All of the women who participated in the interviews and focus groups worked in crop agriculture, and the most common crops worked in were onions and corn. All but one woman had children.

The transcribed audio recordings and notes were analyzed using line-by-line thematic coding with NVIVO. Three members of the research team coded the data deductively, guided by previous literature, with a primary focus on considering the various dimensions of well-being established by previous literature. We also coded the transcriptions inductively, allowing the data to guide our analysis further. Examples of some of our a-priori codes include *barriers to medical care* and *work schedule challenges*. An example of an inductive code includes *concern with quality of childcare*. This approach allowed

⁴ See Curl, Meierotto, and Som Castellano (2021) for a review of this larger research project.

additional key themes to emerge. Members of the research team initially co-developed a coding scheme and then independently coded a small number of transcripts. We then compared our coding schemes to ensure accuracy and provide an opportunity to discuss emerging themes and ensure we were exhaustively coding the data. We then returned to coding the data individually, eventually comparing results to ensure consistency in the coding process. Overall, we found that consistency in coding was high. In the few instances where we noticed discrepancies, we discussed the results and made adjustments to the coding as necessary.

Results

In the results section, we use the conceptual framework articulated above, focusing first on family and work demands, followed by family and work supports, to organize the findings for this qualitative research. We also call out the role of organizational, community, and geographic context, and throughout, we emphasize how structural violence and intersectionality shape experiences with labor in these domains.

Family Demands

Responsibility for Household Labor

A prominent family demand for our research participants was household responsibilities. All the women we spoke with were primarily responsible for household labor, including childcare. One woman in her 80s who had worked in the fields for most of her life noted that “the men, they don’t really help ... It’s a machismo type of the thing. The men do not get involved in the kitchen.” Women frequently spoke about the ways in which their responsibility for household labor created conflict in the work-family interface. For instance, one woman said:

But you still have to come home to cook and—and to clean, and—and when I was with my significant other, it was really hard, because being a mom and then being in a relationship um, and I say in a Hispanic relationship where the women [do] everything, literally everything, is really hard because you have to cook, clean

um, take care of the children, make sure the kids are doing their homework, make sure nobody’s skipping school and make sure, you know, the man’s happy and fed and blah, blah, blah, and it’s just—it’s um—that’s rough.

Another woman, with small children at home, said,

I will get up at least at 3:30, 3:00, to start doing my lunch, pack the girl’s stuff, make sure that they have snacks or anything for the babysitter. So, I would ... drop them off and then head to work. Be at work all day, and then come home around 6:00, 6:30, by the time I pick them up, the girls are, I’m bathing them around 8:00, dinner, everything rushing. So, the girls will go to sleep around 9:30 or 10:00, and then meanwhile I have laundry. I have to prepare, make sure I have everything that they need for the next day, and then put it together in the morning. So, I usually go to sleep around 11:00. No later than 11:00, by the time I’m done cleaning and everything. ... It is a very long day.

These quotations illustrate that the gendered responsibility for household labor combined with the labor of farm work made for long days; as noted further below, this combination of responsibilities can take away time with children or self-care. Thus, the structural violence that can stem from gendered work in the private sphere can importantly influence these women’s physical and emotional well-being.

Caring for Children

As reflected in the above quotations, caring for children was a primary way that family and work conflicted for the mothers we spoke with. Women would talk about the importance of spending time with their kids. “I’d say 15 minutes of individual time with each kid is mandatory for our kids’ well-being. Just throughout the day.” However, as noted in the previous section, the care of children combined with work and other household responsibilities could be a stressor. One woman spoke about her mother managing fieldwork with household responsibilities, saying, “She was always working,

trying to come home and trying to do everything. Taking care of us, basically.”

Farm work requires women to secure childcare, which was a common source of stress. First, childcare is expensive. “... a lot of good daycares are a good penny.” Most of the women we spoke with live and work in rural places, where services for children, including childcare, can be more difficult to acquire (Graham & Underwood, 2012). In addition, the quality of childcare was a common concern, and this often preoccupied women during the day. One woman stated that finding childcare was “Hard because not everyone takes care of them well.” Another stated that she worried about childcare “All the time. All the time, because you don’t ever know who you’re going to get.” Another said,

You don’t know people well, like when you go to work, you just wonder, ‘Are my children okay? How are they?’ They’re too little to tell you what’s wrong with them, or what happened to them, or something like that. You have that concern, the well-being of the children and whether they’re well taken care of, how they’re treated.

Most women, however, felt that they had no other options. As one woman noted, “It’s very scary, just to leave your kids. Yeah. You worry a lot. But what else [can you do]?”

Given this, it is not surprising that some women bring their children to work with them, especially in the summers. One woman had observed mothers bringing their children to the fields, saying,

Yeah. I think that’s why they take them, to be honest. [childcare is] expensive ... there are women that they do take their kids to work. And they just leave them under a little shade that they take, and the kids are just playing all day with their mom. And sometimes they just put them to work.

Some women also reported not working or not working as much as they would like because of childcare dilemmas. “Sometimes you have to stay

with them because you don’t have no one.” In all, caring for children and securing childcare were substantial challenges for the Latina farmworking mothers we interviewed. At times, the flexibility of farm work allowed these women to bring their children with them or stay home. However, in these instances, flexibility is not necessarily understood as a benefit or support. Here we see that structural violence associated with gendered responsibilities in the private sphere can conflict with labor in the public sphere. This can be made more difficult for those struggling with challenging work schedules and limited childcare, which can be exasperated in rural communities.

Single Motherhood

Single parenthood can increase strain in the work-family interface; single parents can have increased role demands and fewer resources available to them, are required to work outside the home for pay, and often have lower occupational mobility. Echoing previous findings, many of our research participants spoke about how single mothers were more time-constrained and lacked social support and financial resources. One woman said, “I have heard women who are single mothers who say that it’s difficult for them to pay rent or groceries because sometimes they don’t have families either, they are alone.” Another told us that “When you’re a single mother, it’s also very difficult—like, to work, bring everything home, and—and, like, when they get sick. I’ve been a single mother for many years—and I’ve suffered a lot. I had a hard and difficult life.” Another spoke about needing to work long hours when she was single, saying, “I would work 10, 12, or even 14 hours depending on the job. I would even work 80 or 90 hours in a week. ... I am a single mother, and I had to manage somehow.”

Family Health Issues

Women also spoke about family health issues interfering with paid labor. One woman shared how one of her children had medical issues. Because of this, she had to reduce her work hours. She said: “My son got very ill. So ... we’re going through a lot of medical issues ... I think the doctor’s appointments are one of the hardest.” Other

women spoke about their own experiences with illness or work-related injuries, including knee and ankle sprains, heatstroke, and injuries that landed them in the hospital. Such illnesses and injuries often limited their ability to work and, in turn, support their families.

Throughout this section, we can see the ways in which intersectionality and structural violence can shape experiences with family demands. For instance, structural violence shapes these women's experiences via exhaustive gendered demands in the private sphere. These gendered experiences intersect with geography by, for instance, making childcare more difficult to find. Low incomes and unsafe working conditions, which are also connected to structural violence, further exacerbate these family demands, making it difficult, for example, to address illness and injury.

Work Demands

Challenging Work Schedules

Many farmworkers talked about their jobs' long and irregular hours, which could interfere with other responsibilities. For instance, some women expressed concern about how their work schedules influenced their children's well-being and led them to express feeling like a "bad mom." As one woman told us, "I have to take them [to childcare] really early. That is hard too—poor kids. Dropping the kids around 5:30 in the morning. And then you have to stay there until 5:00. So, they basically—babysitter is raising them."

The hours of fieldwork do not align well with the hours that childcare centers are open. As one woman noted, the local childcare center opens at 7:30 and closes at 4, not aligning with her work schedule. Many women had to supplement childcare in a center with care from a babysitter. "Because the daycares don't open until like 8:00 in the morning, you know, and you gotta be out in that field by 6:00 in the morning or earlier. Um, it's just not going to work. ... you still need that person that's going to either take your kids there or you show up late to work."

As noted above, women also reported that good childcare was expensive and that the long and sometimes unusual hours of farm work could also

contribute to the expense. "It is hard. Very hard, because, I mean—and then people are just like, charging you more. Like if you don't come from this time to this time, then they just start charging you like two hours extra. So, that's really hard."

The seasonality of farm work also conflicted with childcare, particularly for those with school-aged children. "Like depending if it's summer break or not summer break, and most times it's—you're working when it's—schools out, and so, you need to pay more and [arrange for] childcare."

Further, during specific times of the growing season, work would be available seven days a week, and most of the women working in the fields needed the income. Many women worked seven days a week at the height of harvest season and for more than 10 hours per day. One woman told us, "The most time it was over eight hours, or 10 hours every day. Every day, seven days a week." This same woman continued by discussing the responsibilities women would have at the end of their shift, saying that after coming home from work, they were "Cooking dinner, getting ready for the next day." She noted that women working in these conditions do not get much sleep. Here we see that collectively the intensity of farm work and the seasonality of this work conflict in many ways with the care of children, which these women are predominately responsible for.

Migrant and Seasonal Head Start programs, which provide childcare for migrant and seasonal farmworkers, can be an important source of childcare for farmworkers (Kossek et al., 2005). Many women we spoke with had experience with this program. Women appreciated the quality of childcare at Head Start, and Head Start programs aim to align with the seasonality of farm labor. However, Head Start does not always align with the hours of farm labor, nor does it allow children over five years of age. Further, Head Start programs fill up quickly. When asked if she uses Head Start, one woman said, "it depends if they have availability, because ... slots fill up quick and stuff. So, you have to – and depending on the age and stuff. So, maybe your younger children might be able to go, but your older children ... won't be able to go there."

Work and family responsibilities also made it difficult, if not impossible, for women to engage in self-care, such as accessing health care. As one woman noted, “I think a lot of us, we don’t go to the doctor often. I think our priority is our kids, most of the time. But a lot of women ... they don’t have that time.” Many women lacked adequate time to care for their own needs between managing work and childcare, yet another example of structural violence.

Difficult Work Conditions

There were many difficult work conditions that these women contended with, which influenced their physical well-being and their ability to have time and energy for household responsibilities or self-care. Environmental and occupational health issues, such as sun exposure, extreme heat, mud, and working with heavy equipment, were discussed in relation to the work-family interface. As one woman told us,

And you’re just exhausted, and it’s really hard to even keep your kids straight like, because after you’re working so hard and you’re in the sun, you come home, and you’re tired. That sun’s hittin’ on you all day. You’re just exhausted like—and that—I mean the work itself makes you exhausted, but it’s just the whole situation.

Another woman said, “Yes, and in the field, you are not taking care of your kids enough ... because you wake them up super early, poor things. And then you get home really late, and you arrive really frustrated from walking and walking all day. ... You come home tired, frustrated, beat by the sun.”

Low Pay

The low pay of farm work can also be a work demand that can influence the family domain. A woman spoke about this, saying, “it’s just getting harder and harder to be a fieldworker like what do you do when your wage is only—I think the maximum now that they pay is US\$10 an hour, and I’m like, how do you live off of that?” The low pay of farm work makes earning a living difficult, and it

can also require women to work more hours or work multiple jobs, limiting time and energy for family and self. Low pay is demonstrative of the ways in which gender, race, class, and occupation intersect to limit the ability of women to take time off from work to care for household responsibilities or themselves. As one woman noted, “Sometimes I would end my shift in one job and head straight to another one because I needed to work. I needed to do that in order to pay my bills.”

Throughout this section, we again see the ways in which structural violence and intersectionality shape the experiences of Latina farmworkers. Being women who hold multiple and intersecting identities associated with marginalization makes them more likely to engage in farm work, which is low-paid, seasonal, and highly contingent. Structural violence influences the conditions of this work, which includes challenging occupational and environmental conditions. Further, the intersections of race, gender, class, and geography make accessing childcare more difficult. Results of this violence include an inability to care for one’s health. For instance, many of these women lacked adequate sleep, and they found it hard to access health care.

Family Supports

Instrumental and Emotional Supports from Family

Research participants frequently mentioned family supports that helped them manage their dual roles as mothers and farmworkers, including emotional and instrumental support. Emotional support can involve providing care, trust, and love to others (French et al., 2018). Instrumental supports are tangible, such as providing financial assistance, offering someone a ride or meal, and assisting with finding a job.

Respondents spoke about how family helped with childcare and finances, provided food, and assisted with finding employment. Such help often came from extended family. As one woman noted, “If I had problems, even financial problems, even though I don’t like to, I know that I have [support] sometimes with my family.” Another woman said, “Well, if I don’t have enough ... [my Dad] helps me, or I ask an aunt, or they lend me money.”

Things like that.”

Husbands and partners also provided emotional and instrumental support. While women were still predominantly responsible for household work and childcare, some partners were occasionally helpful with managing children and work schedules. One woman, whose husband would travel back to Mexico frequently to care for his parents, spoke about him helping when he was present, particularly with getting the children ready for and transporting them to school. Similarly, another woman spoke about her husband helping in the mornings: “The bus comes to get [their youngest child] at around 6:22 a.m. And my husband is still here [to help out].” Having a partner in the household could also help with expenses, including insurance. “My husband and I are separated. But through the regulation of his insurance, we’re still legally married. So, he has to cover my health insurance.” Some women with partners were able to work more seasonally and were less concerned about missing shifts to meet family needs, such as doctor’s appointments. A woman whose husband worked full time in construction was able to take advantage of the flexibility that can exist in farm work, stating that:

I think that—that it’s better to work in the field because the hours are not long and you can spend more time with your family, children, and husband. And I think that in other occupations, like in the warehouses, for example, the hours are long. And that is too long to leave your children alone or under another person’s care. The children find whatever they can find in the fridge and—and when you—when you work on the field, you have enough time to cook yourself, to clean, to tend to them a little better and not leave them alone.

Another woman was recently remarried and spoke about the relief of now having a partner. She said, “Uh, like now, that I’m here with him, well I feel more, more at ease because he works, I also work ... [being a single mom] It’s very hard.”

However, as noted elsewhere, the ability to benefit from flexibility is connected to intersectionality. For many women, particularly those with

lower incomes and/or without a partner, the flexibility of agricultural work had more disadvantages than benefits, given that flexibility in this occupation involves lower pay and more piecemeal work. In short, flexibility as a benefit was contingent on statuses of relative privilege.

Lack of Support from Family, and the Role of Friends

Family can be vital for immigrants in providing social and instrumental support (Glick, 2010). However, several women lacked social support from family. This lack of support from family was often connected to more recent immigration, suggesting that structural violence can influence the benefits that family can provide. One woman stated that “There’s a lot of people who come up here who don’t have anybody.” Another woman spoke about needing help when she was injured in the fields. When asked if she had family nearby that could help out, she replied, “Uh, no.” But she told us that her friends helped her by providing groceries, offering transportation, including to the hospital, and caring for her children. As noted further below, friends were also often co-workers. The instrumental and emotional support provided by friends could thus be important in helping manage challenges in work, challenges in non-work life, and the intersections between these two domains.

Multiple women also spoke about the impact of family estrangement or lack of acceptance from family. For instance, one woman, whose family mostly lived in Mexico, had a sister nearby, but they were estranged. “I have a sister, but it’s like she doesn’t exist.” One woman, whose husband brought her up from Mexico, talked about having no family in the country. She felt unwelcome by her husband’s family, some of whom lived in the local community, because of cultural and socioeconomic differences. When we asked if there were people she could receive support from, she said, “No. ... Not even my family because my family is not here. ... I’m here alone.”

In this section, we see that a number of family supports can help women manage labor in the work and family domains. However, these supports were still shaped by structural violence and intersectionality. For instance, being a more recent immigrant reduced the potential support provided by

family and friends. This can be exacerbated by the isolation that recent immigrants, as well as those without documentation status, often feel (Meierotto et al., 2020), leading to the endurance of mistreatment. As one woman noted, “It’s just that, sometimes one can feel alone. With no family, or anything, one has to endure being mistreated.” The potential flexibility of farm work was also limited by structural factors and the various statuses these women held. For instance, being a single mother often meant that women could not take advantage of or benefit from this flexibility.

Work Supports

Work supports can include formal and informal work policies and supportive co-workers, supervisors, or bosses. Few formal work policies existed to support the women we spoke with, but some informal work supports helped women navigate the work-family interface.

Supportive Co-workers

Many respondents emphasized that co-workers provided instrumental and emotional support, which made going to work and managing life easier. When asked what they like most about their work, they would say things like, “Well, you know what? Interacting with the people. ... Being with people,” or “Mm-hmm, mm-hmm! Like – since I like more uh, to go around like, hmm with the ladies, chatting, working.”

Women also received instrumental support from co-workers. One woman said, “I like ... for my friend [to] be in the next row. We will just help each other, like, ‘Oh, I have a big [watermelon]. Can you help me?’ ... and that kind of makes it like easy for us.” Another woman spoke about getting injured on the job. Her supervisor didn’t help her; instead, her co-workers put her in their car and drove her to the hospital. Others spoke about receiving loans, help with childcare, or sharing food with co-workers.

The Role of Farm Owners, Contractors, and Supervisors

Participants shared that farmers, contractors, and supervisors (representing the various forms that a boss can take for fieldworkers) could all act as

work supports. For instance, some bosses occasionally provided food on the job or to take home. “Um, the owners, he’s just really nice because, um, they—they allow the people just to, you know, take corn home.” Some women reported working for bosses that seemed to care about their well-being. One woman talked about a farmer she worked for with fondness, saying, “he just—he seems to be more, like he cares more about the people that are working with him.”

However, farmers, supervisors, and contractors could also be difficult to work for, adding to conflict in the work-family interface. For instance, one woman told us about an exchange she had with a supervisor: “I’m like ... ‘I don’t think that’s fair, you know, you need to have a bathroom.’ And he’s like, ‘If you don’t like to work here, why don’t you just leave.’ That was their answer.” A lack of support from bosses was also reported in cases of illness or injury. For instance, one woman experienced an injury at work, and she received little to no financial support from the farm owner. Such stress in the work domain can spill over into the family domain, creating further conflict. Here we see that structural vulnerability and intersectionality shape the lack of legal protections and fulfillment of agricultural regulations.

Flexible Schedules

While work schedules for farmworkers can be challenging, some women noted that fieldwork allowed them to have a flexible schedule, making it easier for them to manage the work-family interface, including managing children’s activities and caring for sick children. This type of flexibility depended on their supervisors; while some supervisors were good at providing flexibility, others were not. Furthermore, as noted above, even with a flexible boss, there was still a tradeoff, as paid time off did not exist for these women. One woman told us about how her children often had to miss extracurricular activities because of her work, and she noted the importance of a flexible contractor, stating that “[My kids] miss most of the activities out in the community, or any of that because we can’t miss work. ... where I’m working, he’s very flexible. But I’m not gonna ask the day off just to take them for an activity. You know, I have to be strict

for doctor's appointments or any of that." We followed up by asking if this woman ever got paid time off, and she said, "You're not paid. You're not there." This passage echoes other research finding that mothers from marginalized populations experience tension between work schedules and family responsibilities, often forcing women to make difficult decisions that may involve forgoing family events, like school conferences (Crocker, 2016). In short, as noted above, the flexibility inherent in fieldwork is not always a benefit; while fieldwork can involve more flexible schedules, this flexibility is often unpaid. Further, other forms of flexibility, such as moving between farms and having unpredictable hours, are generally a disadvantage for workers.

Related to this, the women who benefited from the potential flexibility of farm work were those with partners with a steady income and willingness to help out. For instance, when asked about challenges related to the schedule of farm work, one woman with an employed husband said, "Sometimes but when I have appointments, or I need to take [my kids] to the doctor, I ask to be excused, so in things like that it's not a problem." When asked about things she liked about farm work, another woman with a husband with a stable job said, "I like [that] you have the freedom [to] just go and work, and you know, when you want to work. [Laughs] It's like, uh, a flexible schedule."

Here we again see the ways in which intersectionality can shape the experiences of labor for Latina farmworkers. The topic of flexible schedules illustrates this well; flexibility in farm work only benefits those positioned to economically and socially withstand having time away from work. The intersections of race, gender, class, and geography combine with single parenthood, for instance, to shape the degree to which this flexibility is a benefit. We also see here that the lack of formal work supports is further associated with structural violence, where women are unable to meet their needs because of the ways in which social structure funnels them into work that lacks the various forms of support that people with other statuses benefit from (e.g., paid time off).

Contextual Factors Shaping the Work-Family Dynamic

As noted throughout the above sections, our results confirm that the traditional framework used to describe the demands and supports that women may experience in navigating work-family dynamics may not be sufficient for Latina farmworkers. Aspects of organizational context were mentioned throughout the above results section. However, it is important to note that community context played an important role for many of the Latina farmworkers we spoke with. Many relied upon local community organizations' support, a factor not often mentioned in research utilizing traditional work-family frameworks. Local community organizations often stepped in to address the ways in which intersectionality shaped the experiences of labor for these women and worked to help alleviate some of the structural violence they experienced. As one woman stated, "I do believe here ... that there is a lot of organizations that will help." As noted above, Head Start programs were often identified as important sources of childcare. Churches were also highlighted as essential sources of support. For instance, when asked what organizations provided help for Latina farmworkers, one woman said, "Churches. I – I say churches all the time because a lot of people go to churches, and I do find a lot of people who struggle, and they give, you know, food vouchers, clothing vouchers to these kids." Local secondhand stores that provided clothing and other basic needs were also mentioned.

Local and state programs were also highlighted as sources of support, such as school and state-supported programs. These childcare and enrichment programs were often particularly helpful during the summer. "My girls will be with [a school-based summer program], and my son will probably just be on watch with [a state-based childcare summer program]." Many women also relied on school meal programs. When asked about school meal programs, one woman said, "Um, I thank God. I thank God that they have that program."

Women also spoke about mistrust of organizations that provide social supports. Based on previous research (e.g., Carney, 2015), a significant portion of Latina farmworkers are likely underutilizing

social supports. As one woman told us, “[Latina farmworkers] don’t really trust in any of [the local organizations.]” In addition, Latinx communities can promote cultural norms that may limit the utilization of social supports (Carney, 2015), which was reflected in our results. When asked if there were organizations she relied on when she needed help, one woman said, “No, because I am a very reserved person. If I need this or that, I don’t tell anyone.”

Some women believed that certain programs, particularly federally funded programs, were burdensome and intrusive.

I have heard that – that getting the food stamps is very difficult because they ask ... a lot of questions and sometimes they say no. ... There are many people who say they’d rather not ask for them and there are people who say that since it’s very – it’s very helpful, well, it doesn’t matter what they ask them or what they have to do as long as they help them.

Many respondents also believed that help from organizations could be dependent on immigration status. As one woman noted, “It all depends on your situation though as well. And if, another thing, I mean – I believe if you have papers too. ... Because if – if you don’t have documentation, how do you get food stamps?”

Relatedly, immigration and documentation status were frequently noted as influencing the work-family dynamic for our respondents. In addition to creating the conditions of much of the work they engaged in, women discussed how recent immigrants did not know their rights, did not stand up for themselves, or seek help when they had troubles at work or home. Here again, we see how intersectionality shapes the experience of Latina farmworkers and how various forms of marginalization result in structural violence. For instance, immigration status, language barriers, and fear of losing jobs were noted as reasons that some women experienced isolation and did not report problems or assert their rights. As one woman told us, “the women think because – I guess I don’t even know what it’s under nine that if you work that many hours that you need to have a break in

between. They don’t know any of that stuff. ... they think that’s the way it’s supposed to be. They accept it. They don’t say nothing.” And a farmworker stated that “many of us aren’t from here, and sometimes, since you don’t have your papers, you shut up.” This silencing combined with separation from family and isolation from community contributes to the strain of labor by limiting access to many social supports that can help women manage conflict and fulfill their multiple responsibilities.

As noted in the above sections, geographic context also influenced the work-family dynamic. For example, much of the isolation described above, which often stemmed from immigration-related fears and language barriers, was compounded by physical distance from individuals and organizations, further limiting supports and opportunities. For many of the women we spoke with, farm work was one of the only jobs they had access to. Further, their access to housing and childcare was shaped by the rurality of where they lived and worked, limiting the availability of these critical resources. In addition, transportation was challenging. Many respondents reported that women in their community often do not have a driver’s license. Further, getting to work often involved long commutes; more than 70 percent of respondents reported traveling more than 10 miles to get to work, and nearly 30 percent reported traveling 25 or more miles each way for work. Thus, rurality operates as an additional factor intersecting with race, gender, class, and immigration status to shape the challenges of fulfilling the roles and responsibilities of many Latina farmworkers.

Summary of Results

In sum, these results show that a range of factors in the work and family domains, as well as community organizations and programs, can act as supports, helping Latina farmworkers navigate that work-family interface. However, many demands stemming from these domains can make navigating this interface more difficult. These demands and supports occur within the context of structural violence and intersectionality, as these women’s experiences are shaped by many forms of marginalization and oppression, including race, class, gender,

and geography. One woman summarized this by stating, “It’s difficult to be a farmworker and a mother. That’s – I don’t know. You know? I don’t have answers for it, but I mean, um, I feel like it’s one thing to live life, and it’s one thing to survive life. And so, I think a lot of people are just surviving life.” Table 1 provides a summary of themes, quotes, and the role of structural violence and intersectionality outlined above.

Discussion and Conclusion

In this research, we build on work-family literature, examining how demands and supports shape

Latina farmworkers’ experiences with work-family dynamics. The data presented here reveal that several supports in the work and family domains can make their labor more manageable. The most commonly discussed work supports were family and friends who provide emotional and instrumental support, supportive co-workers and bosses, and flexible schedules. However, not all women were equally able to access these supports. Structural violence and intersectionality importantly shape the degree to which these supports were available or helpful for Latina farmworkers navigating the work-family interface. For instance, being a single

Table 1. Summary of Findings

	Theme	Illustrative Quote	Role of Structural Violence, Intersectionality
Work Demands	Work Schedules	“I have to take them [to childcare] really early. That is hard too—poor kids. Dropping the kids around 5:30 in the morning. And then you have to stay there until 5:00. So, they basically—babysitter is raising them.”	Hierarchies of gender, race, documentation status, and rurality can all shape the jobs available to women. Farm work is low-paid and highly contingent. Work hours and seasonality often conflict with family responsibilities and self-care.
Family Demands	Gendered Responsibility for Household Labor	“. . . in a Hispanic relationship where the women [do] everything, literally everything, [it is] is really hard, because you have to cook, clean um, take care of the children, make sure the kids are doing their homework, make sure nobody’s skipping school and make sure, you know, the man’s happy and fed and blah, blah, blah, and it’s just—it’s um—that’s rough.”	Persistent structural inequalities related to gender have been found to be even more rigid in certain populations, including in some Latinx communities. Responsibility for labor in the private sphere adds physical, emotional, and mental labor to the long hours and difficult conditions that farmworkers often face.
Work Supports	Supportive Co-workers	“I like . . . for my friend [to] be in the next row. We will just help each other, like, ‘Oh, I have a big [watermelon]. Can you help me?’ . . . and that kind of makes it like easy for us.”	Despite the many challenges faced by Latina farmworkers, including those associated with their race, class, gender, and geographic location, the presence of friends at work can help with the physical, psychological, and emotional burdens of this work, including the navigation of this work with other responsibilities.
Family Supports	Instrumental Supports, Financial Assistance	“If I had problems, even financial problems, even though I don’t like to, I know that I have [support] sometimes with my family.”	Having a partner or immediate family member who is able and willing to provide assistance, whether in the form of providing more income to the household or helping to manage transitioning children between work and home, can importantly assist women in navigating the work and family domains.
Contextual Factors	Organizational Supports	“It all depends on your situation though as well. And if, another thing, I mean—I believe if you have papers too. . . . Because if—if you don’t have documentation, how do you get food stamps?”	Local organizations and government programs were noted as important sources of support. However, structural violence and intersectionality shaped the degree to which these supports were accessible and utilized.

mother and being a recent immigrant made managing the various forms of labor these women were responsible for particularly difficult, partly because access to social supports was limited. Flexibility, in particular, needs to be understood differently in the case of Latina farmworkers navigating work and family. While it may be a support for some, the flexibility of farm work for many Latina farmworkers is a disadvantage, and the benefits of flexibility are more likely to be accrued by farm owners or contractors. Further, for some farmworkers, language barriers, fear, and lack of knowledge about and/or access to supports restricted their ability to thrive as both workers and mothers.

Our findings also reveal several demands that make fulfilling the labor these women are responsible for difficult. These demands are again shaped by intersectionality and structural violence and include responsibility for household labor, child-care responsibilities, demanding work schedules, challenging work conditions, difficult bosses, and low pay. Similar to findings from other researchers (e.g., Hoser, 2012), we found that women were more likely to discuss how work interfered with meeting family obligations rather than the other way around. This, in part, illustrates how these women prioritized their children and viewed both their paid labor and household labor as being in service to caring for their families. At times, work demands and lack of work supports prevented women from engaging in family responsibilities and further limited their ability to care for themselves.

Additionally, the results above emphasize that demands and supports in the work and family domains are contextual. Looking at the organizational context, we see the agricultural industry complicating the various forms of labor that Latina farmworkers engage in. Vulnerability based on structural violence and intersectionality, including hierarchies linked to gender, poverty, race, and immigration, not only shaped the types of work and the conditions of work for these Latina farmworkers but further limited their resources and minimized their knowledge about the rights and protections they should be afforded. The community context provides additional sources of support, such as those emerging from local nonprofit organ-

izations. However, structural violence and culture also limit the use of these supports, including through fear of deportation and isolation. The geographic context (e.g., rurality) shapes the time needed to fulfill work and family obligations, the availability of essential resources, such as childcare, and further heightens isolation, adding an additional status that intersects with other forms of marginalization faced by these women.

This combination of demands and supports and the contexts within which they are embedded creates a unique dynamic for Latina farmworkers as they navigate the work-family interface. In particular, demands in family and work domains were complicated by political, cultural, geographic, and structural factors that limit access to a range of rights and privileges, such as fair wages, workplace safety, equal protections, access to childcare, and access to health care. Structural violence further shapes work conditions, the multiple and often demanding roles they play, their degree of isolation, their access to support from individuals and organizations, and their ability to meet their personal needs and experience well-being.

As noted above, work-family conflict can be detrimental to women's well-being. Of particular note here are the ways in which not meeting societal norms and expectations can contribute to decreasing well-being for women. Importantly, gendered expectations often stem from white, middle-class hegemonic ideals, which do not account for the life experiences and structural vulnerability of women with lower incomes who are not white. Furthermore, the tensions experienced between the work and family domains may also influence women's willingness to fight for better workplace conditions. As noted by Crocker (2016), marginalized women often "work to protect their own employment in the interest of their family responsibilities—often maintaining an image of compliance against even direct assaults on their dignity" (p. 171). Family can act as a motivator for women to tolerate unjust or harmful workplace conditions. Thus, the work-family interface can also negatively influence women by limiting their willingness or ability to advocate for themselves and their well-being.


In conclusion, this research finds that women who are integral to the U.S. agriculture and food

system face many challenges in managing the work-family interface. These findings have many implications. First, while much of the research on work-family conflict has focused on white, middle-class, cis-gender households with two parents, here we expand existing literature to interrogate how various factors may influence the multiple forms of labor that settled-in Latina farmworkers engage in. We find that while some of the demands and supports these women face are similar to the challenges of women in other professions and demographics, such as needing to balance paid labor with a second or third shift, these women have some unique challenges, influenced by the various forms of marginalization that intersect to shape their work domains, their non-work lives, and the intersection between these domains. This research further expands understanding of the role of structural violence and intersectionality in shaping the work-family interface, the impact of organizational, community, and geographic contexts on demands and supports shaping the work-family domains, and how flexibility should be understood in managing the work-family dynamic, particularly for farmworkers laboring in agricultural fields. Given that generalizability of these findings is limited, further research should examine the degree to which these results echo the experiences of other women farmworkers across the U.S. and how reflective these findings are of other women holding multiple and intersecting identities that can result in greater marginalization and compound with pre-existing structural violence.

In the practice of agriculture and food system development, including sustainable and regenerative agriculture, this article is a reminder that issues of labor should be front and center. Considering

the well-being of farmworkers, particularly Latina farmworkers, is vital in agri-food system development given the structural violence and experiences with intersectionality many farmworkers likely face. As others have importantly pointed out, we need to consider large-scale structural changes, including fair wages, safe working conditions, gender equality in household labor, and more, while also considering the role that incrementalism can play in creating change (Allen, 2016). Accordingly, this research can shed light on policy and programmatic changes that may improve the lives of Latina farmworkers. For instance, the data presented here can help support policies related to workplace safety, including at the state and federal level, as well as policies that support fair wages, labor standards in agriculture, paid time off, and affordable, safe, and accessible childcare. In addition, we hope that organizations and programs advocating for farmworkers, and actively working to alleviate the suffering of farmworkers, may also benefit from these findings. For instance, these findings provide evidence for the importance of expanding HeadStart in rural areas. HeadStart has proven successful in many ways, and expanding hours, the months it operates in, and the ages it serves could all improve the lives of many of the Latina farmworkers we worked with.

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Food sovereignty, health, and produce prescription programs: A case study in two rural tribal communities

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Abstract

Structural inequities contribute to food systems in which tribal communities in the U.S. are more likely to experience barriers to healthy food access, including financial barriers, lack of geographic proximity, or both. Food sovereignty movements improve food access by shifting power to local people to build food systems that support cultural, social, economic, and environmental needs. Finan-

cial incentive programs, including produce prescription programs, have emerged as a promising intervention to improve food access and support

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food sovereignty. This case study describes the implementation of two federally funded produce prescription programs (Produce Prescription Projects or PPR) under the U.S. Department of Agriculture (USDA) Gus Schumacher Nutrition Incentive Program (GusNIP) in two rural tribal communities: the Yukon Kuskokwim Delta region in Alaska, and the Navajo Nation, which spans parts of New Mexico, Arizona, and Utah. We illustrate how PPR can be tailored to accommodate local and diverse cultures, strengthen community power, and be uniquely suited for the challenges of increasing access to nutritious food in rural tribal communities. We also highlight recommendations and future areas of research that may be useful for other rural tribal communities implementing PPR.

Keywords

Food Sovereignty, Food Security, Food Access, Nutrition Assistance, Produce Prescription, Case Study, GusNIP, American Indian/Alaska Native, Financial Incentives, Fruits and Vegetables

Introduction

From 2001 to 2021, in each year at least 10% of U.S. households experienced food insecurity (USDA, 2021). Food insecurity occurs when households do not have or cannot acquire enough

food to meet their needs due to insufficient money or other resources for obtaining food (Berkowitz et al., 2018). Food insecurity rates are consistently higher for rural households, households with children, and households with low incomes (i.e., incomes below 185% of the federal poverty threshold) (Coleman-Jensen et al., 2021). Due to the COVID-19 pandemic, rates of food insecurity are estimated to have risen to nearly 42% for households with children and 30% for households without children (Schanzenbach & Pitts, 2020).

While the USDA reports on variations in food insecurity rates among different racial and ethnic groups, there is no regular federal reporting of food insecurity among American Indian or Alaska Native (AI/AN) populations (Jernigan, Wetherill et al., 2017). A study conducted in Oklahoma, New Mexico, and Montana determined that between 2000 and 2010, 25% of AI households remained consistently food insecure and were twice as likely to be food insecure than their white counterparts (Jernigan, Wetherill et al., 2017). Studies in specific AI communities have found even starker rates: for example, 40% of families surveyed ($N=432$) on the Pine Ridge Reservation in South Dakota and approximately 77% of those surveyed ($N=276$) on

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Navajo Nation screened positive for food insecurity, the highest reported prevalence rate in the U.S. (Bauer et al., 2012; Pardilla et al., 2014).

Many AI/AN populations live in tribal areas that are classified as rural and which face structural inequities that exacerbate barriers to accessing healthy food when compared to other communities (Jernigan, Huyser et al., 2017; Kaufman et al., 2014). For example, a study demonstrated that 26% of all tribal area populations were one mile or less from a supermarket,¹ compared with 59% of the U.S. population (Kaufman et al., 2014). A number of studies across urban, rural, and reservation AI/AN communities suggest structural and environmental barriers to obtaining and consuming fruits and vegetables (FVs), including limited availability and higher cost of fresh produce and lower redemption rates for federal nutrition programs, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Jernigan, Huyser et al., 2017). The Federal Distribution Program on Indian Reservations (FDPIR), a federal nutrition program, has attempted to better support AI/AN food security through the distribution of government supplied food, but it has historically provided foods relatively low in nutrient value and cultural appropriateness (Byker Shanks et al., 2016; Mucioki et al., 2018).

The U.S. has dismantled Indigenous food systems through seizure and privatization of traditional Indigenous lands, forced displacement of Indigenous peoples from ancestral homelands to reservations, and has imposed other economic, political, and environmental disruptions. These have resulted in disparities in food security, chronic disease rates, and dietary intake that persist today (Basiotis et al., 1999; Compher, 2006). There is a well-established relationship between food insecurity and chronic disease among adults in the U.S.

(Gregory & Coleman-Jensen, 2017; Jernigan, Huyser et al., 2017; Morales & Berkowitz, 2016). With the disproportionate rates of food insecurity experienced by AI/AN communities, it is unsurprising that these communities experience significant health disparities compared to their non-Hispanic white counterparts, particularly higher rates of cardiovascular disease, obesity, type 2 diabetes, and metabolic syndrome (Hutchinson & Shin, 2014). COVID-19 incidence among AI/AN populations—3.5 times higher when compared to white Americans—exemplifies such disparities and is hypothesized to reflect structural inequities that facilitate community transmission (e.g., crowded living conditions, reliance on shared transportation, limited access to running water) (Hatcher et al., 2020; Sequist, 2020).

Food sovereignty² movements across AI/AN communities have increased in recent years, helping to shift power back to local communities to restore Indigenous food systems, improve food security, and reduce diet and health disparities (Grey & Patel, 2015). Within AI/AN communities as well as elsewhere, financial incentive programs have emerged as a promising model that supports local organizations working to bolster access to FVs for individuals experiencing food insecurity. These organizations, including community-based organizations, healthcare providers, farmers markets, food pantries, grocers, and local governments, have piloted and tailored such programs to meet cultural, social, economic, and environmental needs of the local community and to support local food systems (Jones et al., 2020; Ridberg et al., 2019; Sundberg et al., 2020; Swartz, 2018). Many financial incentive programs are now supported by the U.S. Congress through the USDA's National Institute of Food and Agriculture (NIFA) Gus Schumacher Nutrition Incentive Program (GusNIP)

¹ In the U.S., low-income areas with limited access to nutrient-dense or healthy foods (e.g., fresh fruits and vegetables) are often referred to as 'food deserts.' The USDA Economic Research Service uses the term "low-income and low-access" to designate areas with limited access to healthy foods (Economic Research Service, 2021, para. 2).

² The National Congress of American Indians Tribal Food Sovereignty Advancement Initiative (TFSAI) defines food sovereignty as the right and ability of tribal nations and people to "freely develop and implement self-determined definitions of food sovereignty; cultivate, access, and secure nutritious, culturally essential food produced through ecologically sound and sustainable methods; and design and maintain food systems and enact policies that advance tribal priorities for ensuring that tribal citizens have the sustenance they need to thrive physically, mentally, socially, and culturally not just today, but for the generations to come" (National Congress of American Indians, n.d., para. 3).

(Agriculture Improvement Act, 2018) which funds produce prescription projects or PPRs. Although they vary greatly in design and implementation, a typical PPR consists of a healthcare provider identifying eligible patients by a diagnosed diet-related health condition (e.g., type 2 diabetes), a qualifying income level, and/or a positive screen for food insecurity. The healthcare provider then offers a “prescription” in the form of vouchers, loyalty cards, tokens, or coupons for the purchase of FVs from participating food retailers. To support long-term dietary change, programs often last 4–6 months, and participants receive monthly allotments (valued US\$20–80) which are coupled with nutrition education resources and/or classes. PPRs are now being implemented at local, regional, and statewide levels and on tribal lands, providing a widespread platform to demonstrate the impact and raise awareness of the model. GusNIP program goals include improving dietary health through the increased purchase and consumption of FVs, reducing individual and household food insecurity, and reducing healthcare use and associated costs (USDA, 2019).

Despite current federal support and the program guidelines outlined by USDA NIFA, it is important to note that GusNIP programs, including PPR, are competitive, grant-funded programs that leverage, but are distinctly separate from, other USDA nutrition assistance programs, most notably FDPIR and the Supplemental Nutrition Assistance Program (SNAP). This may be a particularly valuable distinction for implementation in rural tribal communities, as some food sovereignty experts have concluded that federal nutrition assistance programs contribute to historical and present-day colonization by imposing western diets on Native peoples and a system of dependency that directly undermines food sovereignty efforts (Hawk et al., 2015).

This case study examines the experiences of two 2019 GusNIP PPR grantees from rural tribal communities, in the Yukon-Kuskokwim Delta

region of Alaska and the in Navajo Nation, which spans New Mexico, Arizona, and Utah. Learning from the experiences of these two grantees, we explore how PPRs can be tailored to accommodate diverse cultures, strengthen community power, and ultimately increase access to and consumption of FVs in rural tribal communities. We also highlight recommendations and future areas of research that may be useful for other rural tribal communities implementing PPR.

Methods

Using a case study approach, we used observational data collected during annual site visits (2020), project narratives, notes, peer-reviewed literature, and website reviews (Crowe et al., 2011). We triangulated and member-checked our case study descriptions by conducting multiple video conference calls (August–December 2020) with program directors (Shin, Jones Chung) from the two GusNIP-funded projects highlighted in this paper. Multiple co-authors serve as program directors or staff for the Navajo Fruit and Vegetable Prescription (Navajo FVRx) Program (Shin, George, Thomas) and the Yukon-Kuskokwim Health Corporation (YKHC)’s Prescription Produce Program (Jones Chung, Lowe), thus ensuring trustworthiness (i.e., validity) of descriptions, reflections, and recommendations (Crowe et al., 2011). We did not conduct interviews or collect any other data from PPR beneficiaries or other collaborators; therefore, this case study was not considered human subjects research³. This manuscript was approved by the YKHC Human Studies Committee and the Navajo Nation Human Research Review Board (NNHRRB).

Case Study 1: The Yukon-Kuskokwim Health Corporation Prescription Produce Program in Bethel, Alaska

Overview

The PPR developed by the Yukon-Kuskokwim Health Corporation (YKHC) in Bethel, Alaska, is

³ The human subjects data collected in this project (not reported herein) for YKHC Prescription Produce Grant Evaluation is approved by YKHC Human Studies Committee #20.06.04 and Alaska Area Institutional Review Board #1577682. The human subjects data collected in this project (not reported herein) for Navajo FVRx Program is approved by the Navajo Nation Human Research Review Board (NNHRRB) #NNP-21.707.

the first GusNIP PPR to be implemented in a remote tribal community in a subarctic region of the U.S. YKHC is one of 12 tribal healthcare delivery systems in Alaska, serving 58 remote villages and over 23,000 individuals through the main Yukon-Kuskokwim (YK) Delta Regional Hospital in Bethel, as well as five subregional clinics and 41 village clinics located throughout the 75,000-square mile area (YKHC, 2018a). Average poverty and SNAP utilization rates (31% and 43%, respectively) are extremely high across the three areas (Kusilvak, Bethel, and Yukon-Koyukuk) serviced by YKHC (Food Research & Action Center & Ohri-Vachaspati, 2019; U.S. Census Bureau, 2021). Store-bought food items, especially fresh FVs, cost much more than the same foods in the lower 48 states (Greenberg et al., 2020). A 2018 report by the First Nations Development Institute found that a hypothetical ‘food basket’ containing milk, bread, eggs, chicken, ground beef, apples, tomatoes, regular coffee and decaffeinated coffee cost US\$59.12 in Alaska, and the national average cost is US\$23.28. AI/AN residents, who make up 82% of the population served by YKHC (U.S. Census Bureau, 2021), are at higher risk for chronic diseases, such as type 2 diabetes, compared to non-Hispanic white Americans (Espey et al., 2014). The high cost of food, persistent poverty, high rates of chronic disease, little to no commercial food production in the area, and overall low food access underscore the important role a PPR can serve for the region’s AN residents. The aim of the YKHC PPR is to simultaneously reduce the costs of FVs and incentivize primary and preventive care visits, thus improving dietary quality and clinical outcomes (e.g., HbA1c), reducing food insecurity, and improving healthcare utilization and costs.

Since 2019, the YKHC Diabetes Prevention and Control (DP&C) department has enrolled approximately 150 patients with a diagnosis of pre-diabetes, diabetes, and/or gestational diabetes and with Medicaid insurance. Participants receive three one-month prescription vouchers at a time, each redeemable for up to US\$45 worth of fresh, frozen, or canned FVs that do not have added salt or sugar. Participants can receive up to 24 vouchers over the length of the program, worth US\$1,080 toward the purchase of FVs over two years. FV

vouchers can be redeemed in nine participating village grocery stores and through direct-delivery produce boxes from a farm in Bethel. In addition to the PPR, participants receive culturally appropriate recipes utilizing fresh, canned, or frozen FVs, as well as online cooking demonstrations. YKHC’s PPR serves individuals from eight communities in the Yukon-Kuskokwim service area (Figure 1) (Yukon-Kuskokwim Health Corporation, 2016).

Considerations for Program Implementation

The remoteness, extreme weather and severe growing environment, traditional foodways, and the Indian Health System (IHS)-operated healthcare delivery system present unique considerations for the implementation and success of YKHC’s PPR. The YK Delta is a vast river delta, rivaled in size only by the Mississippi Delta region, and surrounded by wetlands and tundra, where the Yukon and Kuskokwim rivers empty westward into the Bering Sea (YKHC, 2018a). The YK Delta and surrounding ecosystem provide an abundant supply of protein-rich subsistence foods throughout the year, including salmon, halibut, herring, whitefish, crabs, oysters, beluga, seal, caribou, muskox, moose, and geese (U.S. Fish & Wildlife Service, 2021). There is no official road system (thus, the area is referred to as “Bush”), but when the YK river freezes in winter months, residents use snow machines or automobiles to travel a plowed “ice road” up to 350 miles to travel between villages; road length fluctuates based on seasonal temperatures and weather patterns (Shallenberger, 2020). In the summer months, barges bring nonperishable staples to the region; however, most food available for purchase is flown in by airplane from Anchorage, 400 miles away, or the lower 48 states. Subsistence foods (also called “traditional,” “country,” or “wild foods”) contribute up to 50% of average daily calories for many AN residents and are essential to preserving traditional foodways and enhancing food sovereignty (Walch et al., 2018). However, limited access to transportation, logistical complications, limited agricultural production, and overall high cost of living generate unusually high food costs, which threaten residents’ food security, dietary adequacy and diversity, and overall health.

Unique Challenges for FV Access

While challenges to FV access related to weather are commonplace in Arctic regions, a few unique barriers inherent to this setting are worth considering when implementing a PPR. As Bethel and surrounding villages are Bush villages, perishable food must be flown in by plane. Unpredictable weather creates a backlog of freight. As passenger planes serve dual purposes of transporting passengers and freight, space for perishable foods is limited. Space reserved for medications, medical products, and U.S. Postal Service Priority Mail is also prioritized over food. Upon delivery to villages, food is stored in non-climate-controlled warehouses or offloaded directly on a gravel runway, for those villages that do not have an airport, and thus is subject to freezing in winter and spoiling in summer. Finally, because food suppliers set minimum purchasing requirements, retailers in villages risk product expi-

ration and money loss if the perishable products they order are not sold, which can deter further procurement of foods like FVs. These obstacles, combined with overall high shipping costs, severely limit the quality and quantity of fresh FVs in Bethel and surrounding villages.

Climate change presents another unique challenge to FV access in the YK Delta region, which has seen an average winter temperature increase of 6° F. over the past 60 years (Chapin et al., 2014). One deleterious effect is that the river that serves as an ice road in colder months has not frozen consistently in recent years (A. Jones Chung, personal communication, March 9, 2020), making it difficult to predict when travel is safe and subsequently impeding the food supply to remote villages along the river. On the other hand, warmer overall temperatures have also extended the growing season for produce:

Figure 1. Yukon-Kuskokwim Health Corporation (YKHC) Service Area



The long-term average temperature for Bethel for an entire year had been 29 degrees, but in 2014 it was nearly 35 degrees ... It's significant because now it's right above freezing, which allows more things to grow outside. (Eaton, 2015, para. 11)

Unique Challenges for Program Delivery

As with FV access barriers, challenges related to program delivery are persistent and difficult to overcome. Even when the river is frozen, snow drifts can render the ice roads impassable and create barriers to in-person program recruitment, enrollment, education and outreach. Online education forums are generally not feasible due to limited internet connectivity. Before the onset of COVID-19, patients could attend video teleconferences at their local health clinic if they could not attend educational classes in person. YKHC's PPR Program Director explained, "Access is one of the largest issues we face. Whether it's trying to physically get to a community or connecting with participants from afar, we face many challenges when it comes to connecting with and providing services to our participants" (A. Jones Chung, personal communication, March 9, 2021).

Challenges Due to the COVID-19 Pandemic

The onset of the COVID-19 pandemic in March-April 2020 dramatically reduced food access and PPR delivery in the YK Delta region, compounding food insecurity and underscoring the need for continued support of PPR. The urgency of preventing widescale COVID-19 transmission necessitated cancelling all in-person nutrition education activities in clinics, especially activities catering to patients immunocompromised or with chronic diseases. PPR enrollment was hindered by community stay-at-home orders: potential participants were unable to sign program enrollment paperwork in the clinics and unable to access mail regularly, sign enrollment forms, and retrieve produce boxes. State-wide travel restrictions led to the bankruptcy of the main freight and mail airline serving the region, further restricting the supply of food, and especially FVs and other perishable items to Bethel and surrounding villages (Treinen, 2020). For several months, retailers were unable to stock their

usual quantity and variety of FVs. Other airlines eventually took over the mail and freight services and even increased their own plane fleets to fill the gap left by the bankruptcy; however, food shipment services remained slower than usual for several months.

With emerging coronavirus variants, education and telehealth appointments are still conducted over telephone or video chat, but are sporadic because of regional connectivity issues. In-person clinical visits have been restricted to reduce stress on the healthcare system and potential COVID-19 exposure. For example, HbA1c blood tests, which measure average blood sugar over three months, are now measured instead every six months for patients with diabetes.

Unique Opportunities for FV Access

In the U.S., PPRs have traditionally focused on farm-direct settings serving as primary redemption sites (e.g., farmers markets, farm stands, mobile markets) and qualifying FVs have been limited to fresh and/or local produce. Barring the innate complexities of supplying fresh FVs to areas such as the YK Delta, the flexibility of the YKHC PPR allows for unique opportunities and facilitators to emerge. First, prescriptions can be redeemed for canned and frozen FVs with no added sugar, salt, or fat, allowing participation in the most remote areas by village stores that may not have the ability to stock fresh FVs. The DP&C has partnered with a food wholesaler that distributes to some of the village grocery stores to supply a greater variety of canned and frozen FVs.

Second, DP&C has partnered with Meyers Farm, a farm in Bethel, that delivers produce boxes year-round to participants in 47 communities throughout the YK Delta. DP&C covers both shipping and produce expenses so that there is no cost to PPR participants. Meyers Farm uses innovative and sustainable farming practices to grow produce not otherwise available to residents (e.g., strawberries, zucchini, carrots, tomatoes, potatoes, broccoli, winter squash). The family-operated farm grows produce two to three feet above the permafrost in virgin tundra. The long hours of sunlight in the summer (in the middle of June, sunlight peaks at 21.5 hours per day) heats the ground and contrib-

utes to faster growing speeds (Kloosterman, 2019). In the cooler months, high tunnels (i.e., hoop houses) extend the growing season. The greatest innovation for extending the freshness of Meyers Farm's produce may be the farm's homebuilt root cellar, located in the permafrost (Figure 2). The interior temperature of the storage bunker consistently stays at 34°F, extending the storage time of produce (a typical refrigerator temperature is 40°F).

Unique Opportunities for Program Delivery

Housed in an IHS facility, the YKHC PPR is committed to cultural appropriateness, integrity, support, and respect for AN ways of life. The Board of Directors, the main policy-making body of the healthcare system, is elected by the community members within each of the 58 federally recognized Tribes in the YKHC service area, and consists of tribal community leaders and members who are also users of the healthcare system (YKHC,

2018b). YKHC's vision—"Through Native self-determination and culturally relevant health systems, we strive to be the healthiest people"—embodies an ethos of Native cultural preservation and food sovereignty. This vision is woven into day-to-day operations of the DP&C department and is a foundational aspect of PPR activities. To further exemplify the commitment of the PPR to cultural appropriateness, recipe cards provided to program participants encourage the use of subsistence foods with FVs and include modified versions of traditional recipes. For example, current recipe cards include moose soup, muskox burgers, salmon chowder, berry water, and salmon fried rice (Figure 3). Cooking classes and online instructional videos reinforce utilization of subsistence foods and FVs, in efforts to synergistically increase the consumption of both types of foods.

Another powerful asset of YKHC infrastructure is the use of satellite village clinics, telemedi-

Figure 2. Produce Storage Bunker at Meyers Farm



Figure 3. Salmon Fried Rice Recipe Card



Salmon Fried Rice

Ingredients

- 1 Cup rice (brown rice is healthier option)
- 1 Can mixed vegetables
- 1 Tablespoon oil
- 2 Tablespoon soy sauce
- 1 Cup jarred or leftover baked salmon

Preparation:

1. Cook rice according to instructions on packaging.
2. In large frying pan heat oil over medium heat.
3. While pan is heating up, drain the can of vegetables and wash under water to remove excess added salt.
4. Add vegetables to frying pan and heat for 3-5 minutes.
5. Add Cooked rice, salmon, and soy sauce.
6. Continue cooking for 5-10 minutes.

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... cine, and community health aides (CHAs) in each village, which range from 50 to 1250 residents, where the bulk of medical care is provided. CHAs, most of whom are residents, are referred to as the “eyes and ears” of the remote health system and must have a high school education and complete numerous trainings and certifications. CHAs communicate with other YKHC healthcare providers via telemedicine, telephone, and detailed electronic health records (EHRs). For example, an EHR can be edited by the CHA at the village clinic and viewed at YKHC headquarters in Bethel in real time to foster continuity of care. CHAs have deep contextual knowledge of cultural nuances in villages, likely knowing or related to the people they treat. In addition, CHAs already provide chronic disease prevention and health promotion, so PPR implementation can be integrated into the existing workflow. All YKHC satellite clinics use a single EHR system, Cerner, so PPR referrals, clinical markers, and healthcare utilization data can be eas-

ily extracted for impact evaluation. Because DP&C is responsible for diabetes outreach education and preventive services, DP&C providers can verify patient eligibility (diagnosis of diabetes, pre-diabetic, or gestational diabetes; use of Medicaid) in Cerner to recruit program participants, which enhances program reach.

Case Study 2: The Navajo Fruit and Vegetable Prescription (FVRx) Program in Navajo Nation

Overview

The rate of food insecurity among Navajo households is among the highest reported in the U.S., and is linked to high unemployment, geographic isolation, and sparsity of grocery stores (Mullany et al., 2013; Pardilla et al., 2014). Long-standing policies, including military destruction of local Native food sources, military and industrial pollution of water and land, and diversion of water sources,

have undermined traditional agricultural practices (Centers for Disease Control and Prevention, 2020). Vast area and limited infrastructure (78% of public roads are unpaved) pose formidable barriers to food access (Pardilla et al., 2014). Navajo Nation is the largest reservation in the U.S. but has only 13 grocery stores (Mullany et al., 2013). It is common for Navajo residents to drive 400 miles round-trip to buy food (Diné Policy Institute, 2014).

These constraints result in greater reliance on affordable, energy-dense, nutrient-poor foods with longer shelf lives and contribute to severe rates of obesity, type 2 diabetes, and cardiovascular disease (Gittelsohn et al., 2013; Pardilla et al., 2014; U.S. Census Bureau, 2019). Compared to 10.5% of the U.S. adult population, one in five Navajo adults (approximately 25,000 individuals) has diabetes, and another 75,000 have pre-diabetes (CDC, 2020; Healthy Diné Nation Act of 2014). Consistent access to affordable healthy food is critical to addressing nutrition-related chronic disease (Gucciardi et al., 2014), particularly for Navajo youth, who are facing some of the highest rates of type 2 diabetes in the country (Dabelea et al., 2009). This is of particular salience as 50% of the population of Navajo Nation is under 29, and 20% are between 10 and 19, representing the largest age group (MacKenzie et al., 2019).

Community Outreach and Patient Engagement (COPE), a Native-controlled, community-based nonprofit organization, is a 2019 GusNIP PPR grantee that works with community partners to address food insecurity issues affecting Navajo residents. COPE identified PPR as a promising model because it could address three important community priorities:

1. Improve health outcomes among low-income Navajo families;
2. Directly stimulate Navajo food economies, especially through stores and growers;
3. Increase community-level food access by increasing healthy produce options at small stores.

Started in 2014 as the first PPR in a rural Native community, COPE partners with 15 healthcare facilities, two tribal health programs, one community-based health organization, five early child education centers, 26 food retail stores, and two farmers markets. COPE operates as a train-the-trainer model: COPE trains teams consisting of healthcare providers and support staff from participating healthcare facilities to implement programs tailored for the specific needs of the population served. Eligibility requirements vary per clinic site, but generally include expecting and pediatric patients at risk for or diagnosed with a chronic disease and/or who screen for household food insecurity. Participants are enrolled by healthcare providers and attend monthly health coaching sessions at the clinic, community center, at home, or virtually. Session attendance is required to receive FV paper vouchers of US\$1 per household member per day, with a maximum of US\$4/day per household. Vouchers are redeemed at participating food retailers for eligible FVs, including fresh FVs, frozen FVs without additives, and dried traditional FVs such as dried blue corn and chil chin berries (i.e., wild edible red berries from the sumac shrub). Program duration is six months for pediatric cohorts and nine months for maternal cohorts; however, some families may be enrolled for multiple cycles. Prior to completion of the Navajo FVRx program, all families are encouraged to enroll in other benefits such as WIC and SNAP if not already participating.

In developing the program, COPE built on existing formal agreements with Navajo Area IHS, approaching clinical sites to explore their interest in offering PPR to Navajo families and forming provider teams to implement the program. To date, COPE has recruited and trained 17 teams, expanding to include tribal health programs and home visitation programs. Wholesome Wave,⁴ a national organization founded by the late Gus Schumacher, the late Michael Batterberry, and Chef Michael Nischan that has been instrumental in the creation of GusNIP, provides technical assistance to COPE for program implementation.

⁴ Wholesome Wave is a U.S. nonprofit organization that employs partnership-based program models, such as financial incentive programs, to improve healthy food access and food choices among populations in underresourced communities throughout the U.S. (Wholesome Wave, n.d.).

Considerations for Program Implementation

The fact that Navajo Nation is the largest AI/AN reservation in the U.S. presents unique opportunities and challenges for COPE's PPR implementation. The reservation land base extends into three states (New Mexico, Arizona, and Utah) and covers approximately 27,000 square miles (Navajo Division of Health & Navajo Epidemiology Center, 2013). According to 2010 U.S. Census data, 332,129 residents identify as Navajo alone or in combination, with approximately 47% living within the Navajo Nation reservation (The Healthy Diné Nation Act of 2014, 2014). The land is sovereign to the Navajo people and is governed by a three-branch system with legislative representation from 110 chapters/communities that make up the Nation (Navajo Division of Health & Navajo Epidemiology Center, 2013).

In response to the public health threats faced by this community—food insecurity, a lack of healthy food access, and disproportionate rates of diet-related chronic disease—there has been momentum among leaders and community advocates to strengthen food systems, as well as a movement to promote health and wellness. COPE has received supporting resolutions from all five Agency Councils to increase healthy food and beverage access across Navajo Nation (Rajashekara, 2014).

Unique Challenges for FV Access

Several features of Navajo Nation and the COPE service area present challenges for FV access. First, due to the vast and primarily rural nature of this area, food stores are limited (Kumar et al., 2016). From 2012 to 2014, COPE and Navajo Community Health Representatives conducted qualitative and survey research to determine barriers to healthy food access and influences on food choices (Rajashekara, 2014). Findings revealed that most households traveled more than one hour to purchase groceries and more than a quarter of households made one shopping trip per month, due, in part, to the time and expense of travel to a grocery store (Rajashekara, 2014). Furthermore, over half of households indicated they were unable to access enough FVs, citing high costs and difficulty keeping produce fresh as major barriers (Eldridge et al., 2015).

A particular challenge to promoting healthy foods in Navajo Nation is overcoming the implications of colonization (e.g., forced removal from native lands, loss of access to traditional food acquisition practices) that have led to forced reliance on unhealthy, but affordable, foods (Jones et al., 2020; Kumar et al., 2016). This reliance on energy-dense, nutrient-poor foods has substantially contributed to disproportionately high rates of food insecurity in Native communities (Bauer et al., 2012; Jernigan, Huyser et al., 2017; Mullany et al., 2013).

A final challenge has been promoting local growers. While COPE highly values and has worked with several local producers, barriers in these efforts remain. Organizing farmers markets with produce supplied by local growers is complicated due to a myriad of geopolitical and environmental justice factors. Water access inequalities, pollution, and climate change cause shortened growing seasons, limited resources for growing (e.g., irrigation), and unpredictable yield (Belfer et al., 2017; Bray, 2021; Nania et al., 2014; Wilson et al., 2021). As a result, the incorporation of more local producers and farmers markets has been one of the weaker and slower aspects of COPE's PPR.

Unique Challenges for Program Delivery

Among the unique challenges for program delivery is many small stores lacking the capacity and/or systems to process electronic vouchers (e-vouchers). In keeping with the equity-based approach central to COPE's work, COPE does not want to give larger (or chain grocery) stores a competitive advantage over smaller stores simply because they have the technological infrastructure to process e-vouchers. To ensure equity and to support tribally owned stores, it is of great importance to COPE that smaller stores and the households who utilize them are equally, if not advantageously, supported. COPE therefore must balance the mission to give equal or enhanced opportunity to retailers who have lower capacity with the need to grow the program to include more retailers overall, with the latter program goal most easily achieved by onboarding large-scale retailers.

Although paper voucher systems can be efficient and can help ensure equitable program access,

they are cumbersome to track and process across various distribution, redemption, and reimbursement mechanisms. COPE is exploring incorporation of e-vouchers to receive and redeem incentive prescriptions, but limited internet connectivity and cell phone coverage across Navajo Nation compromises use and reliability of web-based platforms for PPR incentive delivery and redemption.

PPR Challenges Due to the COVID-19 Pandemic

As with the YKHC PPR, COPE adapted to provide safeguards to participants and staff during the pandemic. At the onset of COVID-19, 17 distinct programs were running concurrently across Navajo Nation. Prioritization was placed on providing FV vouchers to families most in need, as the PPR served as a buffer to food insecurity and provided families access to healthy foods. COPE also relaxed program protocols and allowed flexibility in delivery, extending program duration and eliminating voucher expiration dates, so that families had more opportunities to participate. Patient enrollment was conducted over the phone, in-person clinic visits were replaced with telehealth meetings via Zoom, and prescription vouchers were mailed to homes. COPE delivered FV boxes in lieu of in-person shopping at stores and developed COVID-19-related educational materials for store partners and participants. Drop-off destinations were coordinated with families, and multi-product care packages were disinfected and delivered.

School and early education center closures forced the interruption of voucher distribution to some families. Approximately 13 clinics delayed program enrollment and voucher distribution as healthcare providers were diverted to assist with COVID-19-related response efforts. Travel limitations due to reservation-wide curfews and social distancing protocols created delays in onboarding food retail sites. Delivering health education sessions was challenging, as most education and coaching transitioned to virtual formats. Other education materials were distributed to patients while they waited in vehicles for food box pick-up.

COPE reported that overall participant, clinic, and firm numbers temporarily decreased by half because of the pandemic.

Unique Opportunities for FV Access

Previous community need and asset assessments within Navajo Nation demonstrated a need for healthy food access within closer proximities (e.g., on reservation land); these assessments revealed that the need was greatest among COPE's priority subpopulations of pregnant mothers and children (Rajashekara, 2014; Sundberg et al., 2020). Furthermore, assessments demonstrated interest and willingness among small food retailers to expand their healthy food offerings to better align with community demand. In an Epi-AID⁵ report authored by the Navajo Nation and the CDC, 91% of store managers surveyed were interested in offering more healthy foods (Kumar et al., 2016). Prioritizing local food retailers as valuable assets in the Navajo food system can be profound drivers of positive change, because they are often the only convenient food source and are often community members themselves.

Another factor that facilitates the supply of more nutrient-dense foods in food stores on Navajo Nation is the Healthy Diné Nation Act. First authorized in 2014, this policy placed a 2% tax on non-nutrient-dense foods and beverages, such as sugar-sweetened beverages and convenience foods, and exempted tax for nutrient-dense foods, such as FVs, on Navajo Nation (Yazzie et al., 2020). Together, COPE's PPR and the Healthy Diné Nation Act provide synergistic support and increased capacity to existing food retailers to supply healthier foods and beverages in their stores.

Unique Opportunities for Program Delivery

COPE's infrastructure and strong partnerships are an asset for PPR delivery. COPE is closely connected with the community and healthcare and retail partners, having operated their PPR since 2014. Because ongoing and authentic community engagement is essential to their success, COPE formally elicits community feedback in a variety of

⁵ Epi-AIDs are investigations of urgent public health problems, such as infectious or non-communicable disease, unexplained illnesses, or natural or manmade disasters (Centers for Disease Control and Prevention, 2018).

ways. In 2014, COPE was awarded a competitive grant from the CDC, ‘Racial and Ethnic Approaches to Community Health (REACH),’ a national program that seeks to remove barriers related to the social determinants of health. COPE’s REACH Coalition is comprised of healthcare providers, tribal and IHS program directors, community advocates, local growers, and Navajo youth. Monthly REACH Coalition meetings are facilitated by COPE and the Diné Food Sovereignty Alliance with the objective of implementing cross-sectorial initiatives to strengthen food systems and promote health equity. In addition, the Navajo FVRx Provider Network was established in 2017, as COPE recognized the need to strengthen the network of regional collaborating PPR healthcare providers to support the ultimate goal of transferring ownership of the PPR to the providers themselves. COPE hosts Navajo FVRx Provider Network meetings quarterly that allow providers to share best practices, provide feedback on program modifications and evaluation findings, and receive regular program updates.

COPE’s long-term collaboration with Wholesome Wave has also contributed to their mutual success (Wholesome Wave, n.d.), together developing a provider manual for sites interested in implementing PPR, with specific requirements that include: a team of dedicated healthcare providers, including women’s health, pediatric, and health promotion specialists, to provide referrals, produce prescriptions, and track clinical outcomes; department or leadership approval to operate the program; a team charter agreement to follow through with the program for a minimum of one six- or nine-month program cycle; integration of traditional foods and cultural teachings into program designs; and commitment to initial and ongoing training with COPE. Although these requirements are robust, COPE provides sites with the autonomy and flexibility to design their specific programming, such as determining a priority population(s), eligibility criteria, recruitment and enrollment processes, and nutrition education opportunities.

Concurrent with the implementation of the first year of PPR in 2014, the Healthy Navajo Stores Initiative synergistically bolsters the success

and sustainability of PPR and other local food system efforts. Since few models existed for healthy store initiatives in rural tribal communities, COPE developed a Healthy Navajo Stores Toolkit, drawing from evidence-based programs across the U.S. but also adapting materials and approaches to local conditions. Since 2014, COPE has helped increase the stock and sales of FVs and traditional Navajo foods in 30 stores. COPE works with retailers (grocery stores, chain and independently owned convenience stores, trading posts, farmers markets) to make store improvements by researching distributors, making layout changes, training staff on produce handling and PPR redemption, and providing marketing materials (Figure 4). One trading post manager in Lukachukai, Arizona, explained, “The benefits of good health start here! When we put veggies out, they sell. My mom never gave us fruit, but it’s coming back with my generation. When we don’t have fruits and vegetables, people will ask, ‘When are you going to get more of those fruit bowls?’ I enjoy being part of this process. The motivation is here, and the drive is here.” The success of the Healthy Navajo Stores Initiative, combined with the PPR, provides a strong model of public-private partnerships that can be replicated across Navajo Nation and other rural tribal communities.

A unique strength of COPE’s PPR is its integration with the Resource and Patient Management System (RPMS) of the IHS, a decentralized, integrated electronic health record (EHR) for managing clinical and administrative information in tribal facilities (Indian Health Service, 2020). A strength of RPMS is its ability to tailor data to a particular clinical group; users can define a cohort (e.g., enrolled PPR participants at a particular site) and extract variables relevant for precisely that cohort. RPMS shares a single EHR across tribal healthcare facilities across Navajo Nation that enables widespread use of referral templates and data abstraction protocols. These shared workflows contribute to improved patient care and success of clinical-community partnerships, including the COPE PPR.

Discussion

This case study describes successes and challenges of implementing PPR in two rural tribal communi-

Figure 4. Produce Display with Signage at Teec Nos Pos Trading Post on Navajo Nation

ties, the Yukon-Kuskokwim Delta region in Alaska and Navajo Nation in New Mexico, Arizona, and Utah. These communities are disproportionately burdened by high rates of food insecurity and chronic disease, and are classified as low-income and low-food access areas, i.e., food deserts (USDA, 2020). While some experiences may be similar between communities, rural tribal communities are heterogeneous, with different needs depending on culture, geography, history, size, and resources. Nevertheless, general challenges are consistent across both programs, including lack of dependable or accessible transportation systems, fewer food retail sites and which span large geographical distances, increased costs of food procurement for retailers due to geographic distance, inadequate supply chain logistics to optimally store perishable food items in transit, and limited broadband (i.e., high-speed) internet that impacts telehealth opportunities.

Despite these obstacles, implementation of PPR in these two communities also offers unique opportunities, including local and cultural tailoring of program design, messaging, and education. Locally developed messaging can also

communicate pride of place, rather than communicate the stigma sometimes associated with a chronic disease or receiving federal benefits. Promoting traditional foods is also strategic in terms of providing opportunities for economic development for growers who are interested in generating income. In fact, beneficiaries of PPR efforts are three-fold; while patients and their households are the direct beneficiaries, the program provides economic support to participating stores and growers, and indirectly benefits the thousands of community members also served by local food retailers in remote communities.

Unlike federal nutrition assistance programs, PPR provides local programs the flexibility and adaptability to identify where “prescriptions” can be redeemed, thus promoting the local control aspect of food sovereignty. For example, these programs may accommodate small stores and trading posts as well as grocery stores, expanding options for participants. In addition, both PPRs were designed to encourage the use of traditional foods (Sundberg et al., 2020), an important departure from historical federal nutrition policies and interventions such as SNAP which were not

designed to support Native ecological, food, and agricultural practices, and have led to reliance on nontraditional foods and declines in dietary quality.

PPR implementation in healthcare settings can also be strategic for some rural tribal communities. Connections to healthcare providers expand the accountability of healthcare systems to addressing social needs. Health clinics may be among a limited number of sites through which a large proportion of the community can be reached. In addition, infrastructure for telehealth and telemedicine, already established in many rural communities, may be leveraged for the peer-to-peer or professional support and education that augments PPR, particularly when in-person appointments or educational sessions are unavailable. Both communities featured in this case study use a single EHR, which

may allow for continuity of care, effective communication between prescribing healthcare providers, and streamlined EHR data extraction for purposes of program evaluation. Best practices gleaned from these two programs are presented as recommended strategies for implementing PPR in rural tribal communities (Figure 5).


Because PPRs in rural tribal communities are relatively new (since 2014), research is needed to assess implementation strategies that help overcome structural barriers inherent on tribal lands to healthy food access. Such research could include employing recommended strategies outlined in this case study. Implementation research is needed in other rural tribal communities, as barriers and facilitators to program delivery and uptake will vary across

Figure 5. Recommendations for Produce Prescription Programs in Rural Tribal Communities

- *Engage community partners.* Gaining buy-in from community members, healthcare partners, and retailers is a significant component of facilitating an effective PPR. Rural tribal communities often have high levels of social cohesion, which can facilitate program delivery, community acceptance, and development of partnerships with individuals and organizations for PPR incentive issuance and redemption.
- *Actively promote food sovereignty.* PPR can be an opportunity to boost food sovereignty through increased availability and access to locally grown, culturally appropriate fruits and vegetables (FVs) that can be combined with traditional foods to create healthful meals. Emphasis on food sovereignty through local messaging may help to reduce stigma oftentimes associated with federal nutrition assistance programs.
- *Embrace creativity and flexibility in program implementation.* The digital divide in rural tribal areas creates challenges for PPR providers and food retailers. Flexibility and innovation with enrollment and implementation, incentive delivery (e.g., physical tokens rather than electronic), allowable purchases (e.g., frozen/canned/dried FV versus only fresh), educational opportunities, and auxiliary services (e.g., transportation assistance) are needed.
- *Utilize GusNIP funding to elevate unique or 'out of the box' PPRs.* GusNIP is an excellent entry point for nascent PPRs that do not have an urban infrastructure (e.g., rural, rural tribal) and for grantees that may have limited capacity (e.g., staff, space) and limited financial resources. Rural tribal grantees or prospective grantees can use GusNIP as an opportunity to test crucial facilitators (e.g., implementation strategies) that can ensure program success. For example, a PPR can test transportation opportunities (e.g., grocery delivery, food box delivery, ride share vouchers), locally tailored nutrition education, incorporation of traditional foodways, and community engagement.
- *Seek synergistic funding opportunities.* Rural and tribal-based programs may be able to establish funding from multiple federal and local agencies to synergistically support GusNIP activities. For example, CDC's Racial and Ethnic Approaches to Community Health (REACH) program funds grantees seeking to remove barriers related to social determinants of health, strengthen food systems, and promote health equity. Complementary funding opportunities may help provide the basis to launch, implement, and/or sustain a PPR.
- *Leverage the ability to collect electronic health records data.* Tribal-based programs, specifically those working with healthcare partners utilizing the Resource and Patient Management System (RPMS), are uniquely suited to establish the 'business case' for sustained federal funding (e.g., through Indian Health Service), as data on clinical metrics, healthcare utilization, and costs can be easily extracted.

regions and tribal populations. Qualitative research could assess barriers and facilitators in evaluating PRR in rural tribal communities, as many of the issues presented in this paper with regards to program delivery (e.g., connectivity and transportation barriers) will also affect the ability to conduct evaluation. Finally, research is needed to understand program impacts on food access, food behaviors, and health in rural tribal areas, as PPRs gain momentum across the U.S.

Federal food and agriculture policy has rippling health and economic effects on local communities. The 2018 Farm Bill received bipartisan support to expand funding to GusNIP programs, including PPRs. The rural tribal communities in this case study demonstrate how GusNIP grantees can implement PPR in partnership with local organizations to provide critical food resources to commu-

nities that lack access to healthy food, experience high rates of food insecurity, and strive to strengthen food sovereignty. Both cases developed local solutions to persistent food system issues based upon assets, challenges, and needs unique to the community. GusNIP offers tremendous potential to enhance autonomy by providing culturally appropriate resources that contribute to equitable food access across all communities. 

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Nepali Bhutanese refugee gardeners and their seed systems: Placemaking and foodways in Vermont

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Abstract

As the world grapples with how to support the millions fleeing the ongoing war in Ukraine, attention must be extended to how these individuals, and the many others who are forcibly displaced in other parts of the world, can be welcomed to new lands. Research indicates that creating foodways through gardening can provide cultural connections for diasporic communities. However, few studies have addressed how necessary inputs, such as seeds, affect refugees' abilities

to reconstruct culturally significant foodways. Drawing on placemaking theory, this article explores if and how access to seeds and seed systems enables refugee gardeners to grow essential crops, which might be otherwise difficult to obtain, to produce foods reminiscent of their homelands. Focusing on Nepali Bhutanese refugee gardeners in Chittenden County, Vermont, we present findings from 30 semi-structured interviews demonstrating how refugee gardeners draw upon known practices and preferences to make a new land less foreign. Seed systems offer refugee gardeners the opportunity to access, plant, and save familiar crops and experiment with new planting techniques and crop

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varieties. This study indicates that seed systems are an important way through which people make place, both physically and symbolically.

Keywords

Seed Systems, Placemaking, Refugee Gardeners

Introduction

The unfolding crisis in Ukraine has thrown into stark relief the tragedy and plight of individuals who are displaced from their homes. As the world grapples with how to support the millions fleeing the ongoing war in Ukraine, attention must be dedicated to how these individuals, and the many others who are forcibly displaced in other parts of the world, can be welcomed in new lands. The situation in Ukraine has already caused over 4 million individuals to flee their country, more than triple the 1.4 million individuals the United Nations High Commissioner for Refugees (2021) estimated would be in need of resettlement in 2022 due to threats which include violence, political unrest, and human rights violations. When a home country is no longer an option for return, resettlement in a second country is meant to provide refugees¹ permanent homes with safety and dignity. However, differences in language, food, religion, and climate can contribute to challenges such as food security and mental health struggles for resettled refugees (Brown et al., 2019; Moffat et al., 2017). The foodways—the cultural, social, and economic dimensions of food cultivation, production, and consumption—of a new country often present challenges as well for newly settled refugees (Oyangen, 2009). Studies have found that refugees can rebuild some of their disrupted foodways through growing desired and culturally relevant crops (Beavers et al., 2015; Oyangen, 2009). Gardening produces not only nutritional sustenance, such as fruits and vegetables, but also cultural sustenance through the connections it provides to familiar foodways (Strunk & Richardson, 2019). Through the labor of

growing culturally meaningful crops, refugee gardeners incorporate skills, knowledge, and preferences familiar in their cultures of origin into their new foodways (Hughes, 2019; Jean, 2015). Many refugees were farmers in their home² country or came from a farming family, equipped with knowledge and skills to apply in new lands.

In this paper, we apply placemaking theory to describe how refugees use the act of gardening generally and their engagement with seed systems specifically to create cultural meaning in the new places they inhabit (Flagg & Painter, 2019). Growing culturally relevant crops allows refugees to ‘correct’ their new environments to serve as sources of familiar foods that can help foster feelings of belonging, comfort, and hope in a new land (Brook, 2003; Hughes, 2019). While previous research has documented how gardening provides opportunities to create place and restore disrupted foodways (Jean, 2015; Peña, 2006), research on how the access to and management of crucial inputs, like seeds, contributes to placemaking is limited. This study seeks to advance understanding of how refugee communities make place through seed systems. These systems include transactions like sales, trades, and gifts, and the social relations, customs, and practices surrounding them. Materially, seeds are essential to growing and preserving culturally appropriate foods with desired taste and cooking qualities (Beavers et al., 2019). Symbolically, seeds can facilitate connections to meaning, access, and opportunity that tie a person to a place even in a foreign physical space (Carolan, 2007).

To examine the seed practices and values that people of refugee backgrounds bring to the U.S. and adopt once they settle there, this study explores the seed systems of Nepali Bhutanese refugees, the largest ethnic group of refugees who have resettled in Vermont. The displacements that resettled refugees have undergone make their seed systems particularly interesting as they move from their homelands and their social networks. Guided

¹ In this study, the term refugee is used to refer to the participants’ legal status with which they immigrated to the U.S. We recognize that legal statuses such as ‘refugee’ do not capture the intersectionality and complexity of identity. While the term ‘people from refugee backgrounds’ highlights that a refugee status is but one portion of one’s identity, for succinctness we use the term ‘refugee.’

² The idea of home is complex; it is tied to identity, kinship, beliefs, and memories as much as it is connected to geography, land, and physical structures. Concepts of home can be created and recreated, continuously negotiated over a lifetime (Black, 2002).

by the following objectives, this study seeks to understand: a) how gardeners bring and adapt seed system practices to Vermont, and b) if and how people from refugee backgrounds engage in seed systems in ways that make place and create familiar foodways.

To address our objectives, we first discuss the theoretical framework of placemaking and foodways. Then we describe the background of the Nepali Bhutanese refugee crisis and the seed systems prominent in Bhutan, Nepal, and the U.S. We then describe the methods of this study, before presenting the findings from 30 semi-structured interviews with Nepali Bhutanese refugee gardeners that explored crop production, seed access, and seed sharing. Our findings suggest that rather than assimilating into existing seed systems in the U.S., refugees enact agency and choice to build seed systems that embed meaning in their new environments.

Placemaking Through Foodways and Seed Systems

While refugees suffer from forced displacement and involuntary resettlement, previous research suggests that refugees also actively shape their surroundings through actions, experiences, knowledge, and values (Jean, 2015). These practices of placemaking can include social, political, and environmental (re)actions. Derrien and Stokowski (2014) emphasize that placemaking is neither an outcome nor a goal: “Senses of place should be seen as a learning process, developed over time within an array of social and cultural contexts” (p. 119). These processes are not unidirectional towards goals or endpoints but are a series of negotiations between people and their surroundings. This study uses the placemaking framework to understand how Nepali Bhutanese refugees bridge memories of home and sites of relocation through their seed systems (Jean, 2015; Strunk & Richardson, 2019).

Resettled refugees in the U.S. often encounter vastly different foodways, such as signs and labels in a different language, unfamiliar foods in grocery stores, and new payment processes like the EBT system of the Supplementary Nutritional Nutrition Program (SNAP). Thus, refugees interacting with

foreign foodways necessitates placemaking—navigating the new by importing the known (Bridle et al., 2020; Pierce et al., 2011). For example, in a study of Vietnamese gardeners in the U.S. South, Rhoades (2013) found that the ability to garden and the social networks of sharing seeds facilitate access to fresh herbs, fruits, and vegetables needed for Vietnamese cuisine. Gardening provides a way for refugees to connect back to their known foodways through growing fresh, organic produce for home consumption (Rhoades, 2013).

Additionally, the act of gardening draws upon expertise and traditions that form the backbone of many refugees’ lives and livelihoods (Jean, 2015). In a narrative analysis of Bosnian immigrants in Vermont, Derrien and Stokowski (2014) found that gardening reconstructs and reinforces poignant past experiences. For example, describing gardening in Vermont’s climate, Bosnian immigrants draw upon memories of planting potatoes with family members in Croatia. Similarly, interviews that Harris, Miniss, and Somerset (2014) conducted with refugees from Congo, Burundi, Somalia, and Sudan in Queensland, Australia indicated that farmers apply skills and traditions from their backgrounds to develop and maintain belonging and identity. While incorporating accustomed habits, refugees also confront new environments and therefore may be required to modify traditional agricultural practices (Oyangen, 2009). For example, Jean (2015) found that refugee farmers with farming backgrounds adapt to new climates and seasons in Utah through new methods such as row measuring and irrigation. Thus, placemaking is a complex process, combining memories of homelands with new knowledge and practices.

Socially, gardening and engaging in seed systems also provide opportunities for refugees to maintain existing networks and form new ones to exchange information, share propagative material, and build relationships. Sharing seeds, produce, knowledge, and labor can provide opportunities for refugees to build trust, reciprocity, and social connections in new communities (Harris et al., 2014). These networks are not only local but can also reach long distances; for example, in the U.S. South, Vietnamese gardeners share plants, seeds, and cuttings locally and across states (Rhoades,

2013). Furthermore, these social networks can enhance community formation, attachment, and support, providing connections to knowledge, materials, and decision-making centers (Hughes, 2019). In Vermont, Nepali Bhutanese refugee gardeners have reported feeling significantly more social support compared to other refugees who did not garden (Gerber et al., 2017).

Rhoades (2013) described how access by Vietnamese gardeners in the South to culturally meaningful crops provides a material and symbolic connection to their homelands. This study seeks to build upon Rhoades' work to investigate how refugee Nepali Bhutanese gardeners in Chittenden County, Vermont, utilize seed systems, leveraging traditional seed-saving techniques to mix home and host cultures in their foodways. For people who have had their livelihoods disrupted, felt compelled to physically relocate, and experienced uncertain and shifting statuses of citizenship, seed saving may present an important means to import cultural meaning into new, foreign places of residence. The following section provides a brief background on the displacement of Nepali Bhutanese refugees, with special emphasis on disrupted foodways and seed systems.

Disrupted Seed Systems

Following the Anglo-Bhutanese war of 1865, and encouraged by the British Indian government, Nepali peasant farmers and contract workers emigrated to southern Bhutan for agricultural opportunities, a flow that subsequently grew to about 200,000 by 1958 when citizenship was granted by the Bhutanese government (Giri, 2005; Hutt, 1996; Mitra, 1995). In late 20th century Bhutan, most ethnic Nepali families owned and practiced subsistence farming on about one hectare of land with livestock and draught power (Young, 1991). Their foodways were sustained by the food that they grew themselves and traded in local markets (Hutt, 2005). Nepali Bhutanese farmers, like many other smallholders in the Global South, saved, shared, and managed seeds themselves (Gill et al., 2013; Kobayashi et al., 2017). Accessing seeds via farmer networks as well as agricultural extension agents who distributed government-produced improved (by human selection) open-pollinated

varieties (Kobayashi et al., 2017), Bhutanese farmers maintained an impressive genetic diversity of rice, maize, cereals, grains, vegetables, and fruits (Young, 1991). To date, most seeds used in Bhutan are still sourced from informal seed systems (Kobayashi et al., 2017), typically farmer-managed, local, and involving flexible and undocumented exchanges, in contrast with formal seed systems, which involve intensive breeding and commercial enterprises (Gill et al., 2013). In informal seed systems in the Global South, traditional knowledge about seeds is developed through family and community knowledge, experimentation, and social endorsement (Buck & Hamilton, 2011; Richards et al., 2009).

A campaign of ethnic nationalism, legislatively marked by the Bhutan Citizenship Acts of 1977 and 1985, aimed to assimilate minority ethnic groups (Giri, 2005; Hutt, 1996). As Ngalung culture, the Dzongkha language, and Mahayana Buddhism became central pillars of Bhutanese national identity, the Lhotshampa (the Bhutanese population of Nepali descent) were persecuted for their Nepali language and Hindu religion (Giri, 2005; Hutt, 1996). In 1988, a Bhutanese government census classified over 100,000 residents of the southern Lhotshampa region as non-nationals, an act of official exclusion that led to over 107,000 Nepali Bhutanese refugees fleeing violent persecution to UN refugee camps in Nepal during the 1990s (Hutt, 2005; Shrestha, 2011). As Nepali Bhutanese families took refuge, their previous foodways were significantly disrupted. Without farmland to cultivate, people relied on UN food rations, although some refugees had opportunities to grow crops in camp gardens and nearby lands (Blanck et al., 2002). Relocation to Nepal meant that well-established networks, including those revolving around seeds, were disrupted; access to seeds in Nepal depended on relationships with people who were integrated into informal seed systems, as those systems have long been the predominant source of seeds for the vast majority of Nepal's food crops (Joshi, 2000).

Since 2007, over 100,000 Nepali Bhutanese refugees have resettled to other countries, including the U.S., as neither Bhutan nor Nepal granted civil rights to Nepali Bhutanese refugees (Shrestha, 2011). Many could not legally bring seeds across

international borders; the U.S., like other countries, has strict policies regarding propagative materials entering and exiting its borders. Arriving in the U.S., Nepali Bhutanese refugees find a different dominant seed system than what they were used to in Bhutan and Nepal. The seeds that are sold in most U.S. grocery, garden, and specialty stores come from formal seed systems that commercially distribute uniform seeds bred and selected for desired physical, physiological, and sanitary traits (Aguilar et al., 2015; Almekinders et al., 1994). However, since the U.S. seed market for gardeners is relatively small, many seed companies focus on developing seeds for large-scale producers who are likely to buy large amounts every year (Deppe, 2000). The formal seed system of the U.S. presents a distinctly foreign experience for refugees accustomed to an informal seed system oriented towards South Asian ingredients and tastes—and, at least in the case of Bhutan, a policy orientation around organic production (Feuerbacher et al., 2018)—encountering one governed by business transactions and lacking diversity in culturally meaningful cultivars such as the hundreds of rice varieties circulating in informal seed systems in Nepal (Joshi, 2000). This study seeks to depict how refugee gardeners navigate their new circumstances to access and grow familiar crops.

Research Setting

The study was conducted in Chittenden County, home to more than 163,000 residents and 25% of Vermont's population (U.S. Census Bureau, 2021). Vermont is founded on traditional lands of the Abenaki Nation and was 94.2% White in 2021 (U.S. Census Bureau, 2021). Chittenden County, with the highest percentage of foreign-born individuals (9.0%) among Vermont counties, is where most of the state's 2,500 Nepali Bhutanese refugees have resettled (Sari, 2018; U.S. Census Bureau, 2021). Burlington, the largest city in Vermont (population 40,000), and Winooski (population 7,000), a bordering small city, are the first relocation sites for many refugees. In each town, one community gardening organization was chosen: New Farms for New Americans (NFNA) in Burlington and Winooski Community Garden Network in Winooski.

Started in 2008, NFNA operates five acres at the Ethan Allen Homestead, a historic house and park in Burlington. NFNA provides subsidized garden plots and greenhouse tables to an average of 250 farmers yearly (of whom about 86% are Nepali Bhutanese), provides supplies and informal farmer support, and also hosts educational workshops. NFNA is housed within the Association of Africans Living in Vermont (AALV), a nonprofit refugee service that provides social services, interpreter and translator services, legal services, and health and behavior programs. The second garden organization, the Winooski Community Garden Network, is located about four miles east of the NFNA gardens. The sites are managed by the Parks and Recreation Department of Winooski and are open to any city resident. Within the Winooski garden network, five garden sites totaling about 160 plots offer garden beds ranging from 40 to 225 square feet each (City of Winooski, 2020). Although no official data are collected on the race/ethnicity of gardeners in Winooski, program managers estimate that about half the garden plots are managed by immigrants, the majority of whom are Nepali Bhutanese. These five sites are within one mile of each other.

Research Methods

This study is based on 30 in-depth interviews with Nepali Bhutanese gardeners. With the help of interpreters with excellent knowledge of the Nepali Bhutanese gardening community, the first author conducted convenience sampling, making interview appointments with interested gardeners. The sample for this study includes 15 Nepali Bhutanese farmers from NFNA and 15 Nepali Bhutanese farmers from Winooski community gardens. Participants fulfilled the following criteria: Nepali Bhutanese refugee gardeners, over 18 years old, and U.S. citizens or permanent residents. The semi-structured interviews were guided by a set of 15 open-ended main questions, ten sub-questions, and multiple prompts. The interview guide sought to understand if and how gardeners access seeds in the U.S., adapt to new growing conditions, and either accept or reject certain crops through the seed-saving process. Questions focused on identifying similarities and differences in growing, saving,

and accessing seeds in Bhutan/Nepal and the United States. Demographic questions were asked at the end of the interview; this information is displayed in Table 1. A panel of experts (a rural sociologist, anthropologist, applied economist, plant geneticist, and NFNA program director) helped shape the interview questions for academic rigor and community cultural competence. The Office for Research Protections at the University of Vermont approved the study on March 22, 2019.

Interviews were conducted at the gardens and in participants' and interpreters' homes in Winoochi and Burlington. Interpreters affiliated with NFNA provided simultaneous interpretation in English and Nepali. As occurs in translation, data can be lost or transformed due to untranslatability: the lack of a suitable translation for a word or feeling in another language, summarized descriptions, distorted meanings, and other issues of miscommunication (Cui, 2012; Temple & Young, 2004). We mitigated these challenges by reviewing the interview guide with the interpreters and piloting the interview guide. Sampling proceeded until saturation was achieved and interview data started to become repetitive with limited new information (Creswell, 2006).

The English dialogue of the recorded interviews was transcribed verbatim through the Speech Pad transcription service. Open codes were developed, combined, and organized in NVivo

v. 12. The codes were labeled with descriptions beginning with gerunds focused on seed system activities and placemaking (e.g., seed saving, selecting, sharing, and experimenting). Codes were then grouped into themes by noting similar patterns (Miles et al., 1994) and identifying patterned regularities. The following section presents the findings that emerged from analysis, focusing on differences in growing conditions, seed saving as a cultural practice, and adapting to the Vermont environment.

Results

Growing Conditions

Our findings suggest that gardeners merge their traditions and skills with new approaches to adjust their foodways, thereby performing placemaking. With existing knowledge and new techniques, gardeners plant and harvest various cultivars of crops. Our fieldwork observations noted the following crops in the gardens, though this list is likely not exhaustive: amaranth (globe), beans (multiple varieties), bitter melon, broccoli, cabbage, carrots, cauliflower, cilantro, corn (multiple varieties), cucumber, dill, eggplant (multiple varieties), garlic, green onion, lettuce, marigold, mustard greens, okra, onion, pepper (multiple varieties), potato, radish (multiple varieties), snake gourd, spinach, squash (multiple varieties), tomato (multiple varieties), and tukruke.

In Vermont, refugees confront a climate unlike either southern Bhutan or southeastern Nepal, where refugee camps are primarily located (Hutt, 2005) and where the subtropical climate remains steadily above 60°F but divides the year into a wet and dry season. The short growing season in Vermont and harsh winters present distinct growing conditions, a comparison that interviewees commonly noted. One gardener observed: "So there, you know, in southern part of Bhutan, we don't have snow and frost. Here, because of snow, frost come early and then they kill the plants here." The climates of Bhutan and Nepal were favorable for agriculture as a primary livelihood activity: "You basically grow for, like throughout the year. For example, if you grow rice, then you ... also eat that rice, like every morning and evening throughout

Table 1. Interview Demographics (n=30)

Variable	Frequency	Percent
Age		
18–34 years old	5	16.7%
35–54 years old	20	66.6%
55+ years old	5	16.7%
Gender		
Women	15	50.0%
Men	15	50.0%
Year moved to the U.S.		
2008–2011	14	46.7%
2012–2015	15	50.0%
2016–2019	1	3.3%

the year, and also you have, like not unlimited, but a lot to save, so that there's no reason to buy." In contrast, the vast majority of refugee gardeners, even those who relied on farming for their livelihoods in Bhutan, now grow crops as a hobby and must seek alternative income sources.

In addition to contrasting climates, the interviewees also identified other less apparent differences. The gardeners commonly drew a distinction between experiencing sufficient access to land in Bhutan and feeling constrained in Vermont. One female gardener explained that land constraints in Vermont are a barrier to effective seed saving, an activity that often requires large tracts of land to assure sufficient plant population sizes and isolation from other varieties, if maintaining genetic purity is of concern: "So the difference is we have a lot of land there and we have to save [seeds] for those lands. And here, we have small land and then I don't have enough plant available." Cultivating on small plots in Vermont is more akin to land access in the refugee camps of Nepal than in Bhutan: "So the difference is Bhutan, we have big land, different. And then in Nepal, small land, different."

Gardeners maximize the space they are able to access in Vermont but still feel restricted by the small plots or backyard spaces. Limitations of land also mean limitations in what can be produced. The livestock common in agricultural production in Bhutan provided households multiple benefits, including generation of manure compost: "So, in Bhutan, we don't have to buy the compost, you know. It's from the cow and then from the goat. From here, we have to buy from the store. So there is some difference. ..." There were also observations about differences in soil. The loamy clay soil of the garden plots in Chittenden County contrasts with the leached and weathered soils common in southern Bhutan: "So back home country, our place has a red mud, red soil. So we have vegetables and fruits for six months and then the plants or the soil is dry, soil dry after that." While Vermont's climate, soils, and landscapes differ drastically from those of Bhutan and Nepal, Nepali Bhutanese gardeners nevertheless make their new surroundings more familiar by growing culturally meaningful crops, which often requires learning new farming skills and experimenting with

different varieties of crops. Through actions that revolve around seed systems, gardeners create foodways that connect their cultural history from Bhutan and Nepal to their new homes in the U.S.

Seed-Saving Practices of Nepali Bhutanese Gardeners in Vermont

All 30 gardeners reported that they save seeds, obtaining them non-commercially through networks of friends, family, and acquaintances or through store purchases. When asked why they saved seeds, gardeners discussed how their previous experiences with seed saving influenced them. Older interviewees were taught seed saving in their childhoods in Bhutan. A gardener in her forties recalled:

When I see that something grows really healthy and big, my automatic thought is to save the seed. That is what my parents taught me in Bhutan, so that is now in my brain. The first one, like with okra and peppers, I will keep on the plant to save for next year. All these seeds are the ones that I saved from before - some seeds I get from people in these gardens. In Bhutan, back then, there were no stores for seeds, you have to save your own or ask from other people.

Another gardener in her fifties emphasized the importance of saving seeds both as a smallholder farmer in Bhutan and a gardener in Vermont: "So we keep the seeds in Bhutan like corn, [rice] paddy, wheat—because that's how we survive. And then we have to keep the seeds, just keep on keeping ... That's what I learned there, that's what I'm using here. ... I don't know the system here. I am bringing my knowledge from there." With limited English skills and physical mobility, this gardener, like several others, confronts challenges to accessing seeds through formal outlets such as grocery, gardening, and home improvement stores, which she addresses by asking her daughter to purchase whatever seeds mostly closely match what she wants, chickpeas being the most recent pursuit. Social networks maintained among and between the older and younger generations in the Nepali Bhutanese community also facilitate the transfer of seed and

gardening knowledge. Even though some interviewees were too young to farm while in Bhutan, they learn from elders. To save Asian mustard green seeds, a woman in her twenties explained: “That process is still the same in Nepal and here. Back in Nepal, I didn’t save seed[s] but my mom did.” For those who require additional information to what they picked up from family when younger, the ability to interact with older generations is crucial for cultural traditions to continue in Vermont. A man in his forties asked older people in the community for advice: “So, if I have some doubt I talk to older people. They know it. For sure they know it, because they have gone through all their lives, they have done that all their lives because they were brought up on the farm and they left Bhutan when they were 40, or 45, or 50. . . . I left my country when I was 18. I still know a lot, but they know much more. So, I trust their wisdom. They teach me a lot.” The meaning of saving seeds is enriched by local relationships based in shared culture.

The Taste of Home and Other Benefits

Gardeners try various cultivars in search of flavors and textures, and ultimately, the taste of home. For example, gardeners reported looking for very spicy chilies, beans with tender pods, waxy or glutinous corn with low sugar content, and pumpkins that stir-fry well. When they find varieties that suit their palates and cooking needs, they save the seeds to plant them in the future. For many interviewees, these desired crops also provide prolonged access to culturally relevant food, even in the winter. One woman explained the consumption benefits of growing and storing part of her harvest: “So, to eat, to consume in the house. And I’ve frozen chili, hot pepper, and then tomatoes for the winter season.” Engaging in agriculture in Vermont thus enhances household food security through enabling access to culturally relevant foods, and also enhances stability in terms of having access to those foods beyond just the growing season. Still, only a portion of their consumption comes from their garden plots, which supplement food purchases from stores and markets that many of the gardeners find unsatisfactory because they are either not organic or inordinately expensive if they are. Beyond consumption, gardeners explained that their gardening provided

wellness and social benefits: “Like, my mother, you know, she goes to the farm to chat, and then to exercise, and then to reduce the blood pressure, and then to reduce the stress, that’s what she said.”

When asked why she wanted to plant specific vegetables like daikon, mustard greens, and potatoes, a gardener in her fifties responded, “We were born in Bhutan, we grew up in Bhutan and [are] used to the vegetables of the taste of Bhutan. That’s why.” For her and many of the Nepali Bhutanese gardeners, the taste of Bhutan represents the taste of home. A father in his thirties described how his family chooses among different varieties of tomatoes that they plant: “Some are very sour. And some are very big, and like it’s too much [for one recipe]. And we didn’t save the stuff with [no taste]. The good ones, we save the one that looks and tastes good. We decide, ‘Hey, let’s save this for next time and grow more of this one.’” To find the taste, texture, and size they are looking for, farmers experiment with different varieties, and save the seed of the ones that best suit their palates and culinary uses.

In search of certain cultivars, several interviewees asked relatives and friends for seeds and information. A man in his forties described his mission to grow specific types of pumpkins and cucumbers. He asked his relatives for a specific variety of cucumber from the hills of Nepal because,

That’s the best variety we have there. We have always loved them. We have always liked them and we want to experiment. But we have tried and they have worked to some extent. We have not been able to make them as big as they used to be because . . . [Vermont’s] slower season and the nutrients, or I don’t know, for some reason even though they were smaller they still have the same taste.

Social networks and communities were thus critical for the refugee gardeners to access culturally meaningful food, a step in the production process that precedes actually growing the particular cultivar to see if it will perform in Vermont growing conditions.

The example of tukruke is particularly instructive for understanding how Nepali Bhutanese gar-

deners experiment to grow South Asian vegetables in Vermont. Tukruke, a small gourd-like vegetable that grows on vines, started appearing in NFNA and Winooski gardens eight years ago. One middle-aged woman was gifted seeds from her son and took a chance on whether tukruke would grow in Vermont: “So, when I arrived and resettled here, and then I wanted to try whether it will grow here or not. And then my son sent it here and then I tried, and it grows.” She then shared seeds with her neighbors, including an older Nepali Bhutanese gardener who then started growing and selling tukruke seedlings in the Winooski greenhouse, seeking to enhance access to a plant appreciated in Bhutan and Nepal but uncommon in grocery stores in Vermont. As other gardeners purchased seedlings from the elder gardener, tukruke spread quickly. According to the woman, tukruke became so popular in Nepali Bhutanese garden plots because “all the communities love tukruke. So they buy one seedling. And then they put it, they take care of it, they grow it. And then others grow it. That’s why they spread everywhere.”

The case of tukruke is not atypical. Nepali Bhutanese gardeners often experiment with growing the plants of Bhutan and Nepal in Vermont. Sometimes it works; sometimes it doesn’t. What is critical are the social relationships through which information flows. Sometimes resources travel distances through networks, such as when tukruke was first obtained, but (mostly non-commercial) exchange commonly occurs directly in the garden plots. As one woman described, “I will take you or someone to my garden and show them, ‘Here is my garden, so I’m cultivating this.’ So that person will see what is good at that plot. So here she will say that, ‘Oh, that’s good. You’ll just keep that. I don’t have that,’ or, ‘Next year, can you give me that? I don’t have this year as well.’ So, ‘Okay.’ I will save for him or her and share that.” This trialing is part of how Nepali Bhutanese refugees navigate their place in a new land. As one man in his forties put it, “there is a dignity of risk.” For him, the confidence to try new things without fear of failing is a lesson that started in Bhutan when his parents encouraged him to experiment in nature. He brings the same mindset to his garden, testing alternative methods and crops.

Adapting to a New Place

Given the distinct growing conditions, willingness to take risks and experiment is critical for refugee gardeners seeking to integrate agricultural and consumption preferences into a foreign environment. While refugee gardeners draw on previous experiences or familial knowledge as they construct new seed systems, they also try novel strategies to respond to new difficulties that arise in seed saving. Early frosts often prevent farmers from saving seeds that they were used to saving in Bhutan or Nepal. For example, an older man reported, “so, there are a lot of seeds that we save in Bhutan that we cannot save here because of the weather and there’s frost.” Another gardener reflected on the different methods he uses in Vermont: “It’s a little bit different because some plants, some seeds need to grow inside before putting in the ground. That’s the difference I saw.” This gardener learned that he could not directly sow seeds into the ground and thus started seedlings inside before transferring to his garden plot. By starting seedlings in the greenhouse or inside their homes, gardeners make the short growing season of Vermont work for them. They plant the long-season vegetables they want early and watch them mature in time to harvest seeds.

Some gardeners use the greenhouses—a useful but entirely new approach to agricultural production—offered by NFNA and Winooski Community Gardens. A NFNA gardener exclaimed: “All of this would not be possible without the greenhouse. I start everything in the greenhouse: eggplant, tukruke, beans.” Other farmers strategically buy starts from local stores to ensure that the plants reach maturation to harvest fruit for eating and seeds for saving. A middle-aged woman stated, “So, next year, I learned from the friend. . . . So quickly, weather changes here. The fall season comes, so if we buy plants and put it, it’s easy, quicker to grow, and give produce. [I did it] this year also.” To prepare for the frost and snow that can come in early October in Vermont, farmers will harvest fruits early for preservation, transfer plants indoors, and reserve the earliest ripened fruits for seed saving.

Growing crops in the short Vermont summers that take a long time to mature is a challenge for all

gardeners in the state. Nepali Bhutanese gardeners have adapted by planting familiar crops but sometimes consuming different parts of the crop than what was traditionally consumed in Bhutan and Nepal, as in the cases of onions and pumpkins. For example, a man in his fifties said that in the climate of Bhutan and Nepal, green onions can be grown and eaten year-round, but in Vermont, the greens of the onions could only be eaten during the spring, while the onion bulbs are stored for winter: “[We] can have the green part only for springtime, not for long ... two to three months. But for other months we have to eat the bottom part.” In other efforts to navigate shorter growing seasons, gardeners eat the shoots and leaves of the pumpkin plants they would have grown to maturity back home, even if there is not time for the pumpkin itself to mature.

At the tail end of the season, some gardeners bring plants inside in late fall. A man in his fifties keeps his pepper plants growing in his house, harvesting peppers during winter:

We call it Dalle Khursani. It’s a round chili. It’s like a ghost [pepper]. Really, really, really hot pepper. I have that at home. I save the seeds also, but I save the plant because when I put a plant in the ground ... the cold comes fast, and then the plant will die without giving fruit. ... So, keeping the plant inside the house all the time, every year the plant will produce more and more. I have two or three plants and that is enough.

By extending the growing season in Vermont through new gardening techniques, Nepali Bhutanese gardeners navigate the constraints of their new environment in order to meet their needs.

Although growing crops in Vermont helps recreate aspects of their home foodways, gardeners still face challenges and tradeoffs in accessing and growing crops similar to those in Bhutan and Nepal. Not all gardeners are successful in their efforts to find the taste of home in the crops they plant and harvest. A young woman stated that she plants vegetables that “remind me of my childhood and things that I ate in childhood. I [grow] mustard greens here but not the type ... that I had in my childhood. So, I feel like going back to Nepal ...

and have that flavor, that taste.” This gardener had not been able to find in stores or grow in her garden the kind of Asian mustard greens that she recalled from her childhood. She described her homesickness through the lens of taste and of memory, lamenting that she could not replicate the taste remembered from her childhood in Nepal.

Material concerns accompanied the yearning for authenticity of tastes from home. The gardening organizations, NFNA and Winooski Community Gardens, assign plots to gardeners yearly. When asked if they wanted to use the same garden plot in continuous seasons, all but one gardener (who wanted a garden plot closer to her daughter) replied that they wanted the same land. Usually, gardeners are able to keep the same plot, but they also understand that no guarantee exists. A middle-aged woman explained: “[Gardeners] put a lot of effort, a lot of minerals, compost, and then it’s in the mindset that next year maybe I need to do less work in that. . . . Like put less money in that farm, in that land, because I work so much this . . . to put so many things this year.” Compost in particular is a prominent concern among the gardeners. Despite the cost and added burden to transport manure and compost, many interviewees nonetheless prefer growing their fruits and vegetables without chemical inputs: “So, in the farm, you know, in the garden, we put the cow manure and only the compost. Not the chemical to grow faster.” Thus, in addition to access to specific cultivars, how these crops are produced constitutes an added demand to food production and consumption embedded with cultural meaning.

Discussion

This study discusses how the seed systems of Nepali Bhutanese gardeners contribute to the continuation of culturally significant foodways and thereby make meaning in new places. First, gardeners bring existing farming knowledge, practices, and tastes to their seed systems in Vermont. By reestablishing their seed-saving traditions in Vermont, Nepali Bhutanese gardeners connect to their agricultural backgrounds and past foodways. Second, to adapt to a different climate, gardeners create new seed systems and experiment with crop varieties and techniques. By adapting growing

methods and developing new seed networks, gardeners construct senses of place and culturally significant foodways. For some of the gardeners in this study, the taste of home could not be wholly replicated by the crops grown in Vermont gardens; agricultural livelihoods in Bhutan could not be replaced with renting yearly garden plots in Vermont, yet connections to countries of origin, both through specific cultivars and social relationships, were nonetheless central to the pursuit of cultural meaning.

Although most Nepali Bhutanese refugees did not bring seeds from Bhutan or Nepal to the U.S., they still found ways to incorporate familiar crops and techniques in order to (re)connect to accustomed foodways and make place in lands far away from home (Brook, 2003; Jean, 2015). Consistent with Jean (2015), our findings indicate that Nepali Bhutanese gardeners learn new techniques while adapting seed-saving practices for the Vermont climate. Starting seedlings in the greenhouse or in their homes, gardeners can grow long-season vegetables like snake gourd and tukruke, even in the short growing season of Vermont. Gardeners also confront the short growing season by extending their access to culturally relevant food through freezing some of their harvest and sometimes modifying their consumption practices by eating parts of the plant not commonly eaten in their home countries. As gardeners plant, select, and save culturally meaningful seeds, they introduce new crop varieties to the garden landscape of Chittenden County.

Seed practices allow Nepali Bhutanese gardeners to construct a material and symbolic blend of their old and new homes, layering in meaningful aspects of their traditional foodways in the context of Vermont and its conditions of climate, land access, soil quality, and seed systems. Integrating culturally important crops often requires experimenting with new technologies, as in the case of greenhouses, a resource that the gardeners appreciate. Access to land can provide refugees myriad benefits: enhanced food security, health, social connection, and maintenance of cultural (food) traditions. As food is a key part of cultural disruption for refugees, the ability to grow crops that are important in Bhutanese and Nepali cuisine but uncommon in American grocery stores, such as mus-

tard greens, tukruke, and snake gourd, allows refugees to re-create similar food culture in new places. Respondents, young and old, those with previous gardening experience and those without, reported that seed saving was a part of their culture that they wanted to continue in Vermont. Similar to Sampson and Gifford (2010), our findings indicate that meaningful activities—seed saving, in this case—help form connections between past and present, old and new.


Consistent with past research, our study finds that refugee gardeners exchange gardening information, materials, and support through family and community (Jean, 2015). The gardeners in this study shared seeds and knowledge surrounding seeds with their families and the larger Nepali Bhutanese community. For instance, without the practice of sharing seeds and other propagative materials, the much-loved tukruke would not have spread across the Nepali Bhutanese community in Chittenden County. Paying careful attention to how seed and information flow through networks is important, as access can depend on demographic characteristics and social identities. While Tadesse et al. (2016) found that gender and religious identity mediated access to roots and tubers in Ethiopia, age played a prominent role in our study, as younger individuals sought advice and information from those who were older. Regardless of age difference, though, a commitment to enhancing access to culturally relevant plants was common among the gardeners in our study. Although some gardeners preferred to buy seeds from stores if they needed a large quantity, all indicated that they would willingly share seeds with others provided they had sufficient supply. Indeed, gifting seeds was much more common than selling seeds. Sharing information and planting material helped foster social relationships (Gerber et al., 2017), and helped refugees make place in foreign lands (Hughes, 2019). Similar to the depiction of Vietnamese gardeners in the Southern U.S. (Rhoades, 2013), we found that social relations connecting Nepali Bhutanese gardeners to one another—in the garden, through family and friend networks, and across distances—facilitate access to different varieties of crops and advice about gardening in new climates. Social relationships can both predate gardening activities in Vermont, as

with family members, but can also emerge from the seed systems in Vermont, as in the case of tukruke when new connections were formed due to its cultural desirability. In building new and adapting existing seed systems, Nepali Bhutanese gardeners construct place in Vermont, integrating the familiar into the foreign. Through these choices and acts of agency, refugee gardeners access culturally significant foodways, preserving memories of home and continuing cultural practices.

In this study, we limited our focus to the Nepali Bhutanese refugee community. Future research should investigate whether these findings are relevant to other ethnic groups of refugee gardeners, focusing on specific cultivars of cultural interest and how social relations facilitate (or perhaps exclude) access to these cultivars, with specific emphasis on the role of types of informal seed systems important to the gardeners in this study. In addition, research should look across different agroecological zones to investigate how gardeners navigate different growing conditions, which is particularly useful to provide insight into if and how the kinds of connection that refugees feel to their new residences shift across geographic and ecological contexts. Future analysis should also strive to capture if and how acts of placemaking among refugee gardeners, such as incorporating new cultivars, generates broader effects through the experiences of other local residents (both other refugees and non-refugees) and the structure and function of the local food system (e.g., the extent to which informal seed systems can be accessed by others, the availability of new foods for retail, etc.).

Conclusion

This study has demonstrated how seed systems are a path for the Nepali Bhutanese gardening commu-

nity to infuse cultural meanings and foodways in new places. Despite disrupted foodways, resettled refugees reclaim traditional ways and knowledge of seed saving and experiment with new practices (e.g., greenhouses and transplants) in the hope of re-creating and having more consistent access to the taste of home in a new land. This study highlights actions in seed systems and gardening to show how the processes involved in placemaking and foodways are intricately connected. Through the actions that people take to ensure they have access to culturally significant foods, placemaking happens. By deepening understanding of the different pathways displaced peoples use to create a sense of home in new lands, this study provides crucial starting points for further research focused on the agricultural activities of refugees: the importance of informal seed systems as a means to access culturally important resources, the openness to experiment with new approaches and technologies to import the familiar, the ways that information and seeds flow through specific social relationships, and the myriad benefits of accessing meaningful cultivars. Through these considerations, seed—and food—systems that facilitate culturally meaningful food security for people who have experienced displacement and have been welcomed to a foreign land can be pursued. 

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What do local foods consumers want? Lessons from ten years at a local foods market

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Abstract

The local foods movement is now firmly entrenched in the public imagination and as a feature of the larger food economy. With the most recent wave of local food retail markets now in its second decade, scholarly attention has turned to the factors that correlate with success, yet we know very little about local food consumer purchasing patterns. In this study, we examine a comprehensive database of all food sales spanning ten years at a pioneering local food market in Wooster, Ohio. Analysis of over 1 million sales data points reveals

a number of interesting trends: there are predictable seasonal patterns in the rise and fall of sales at the market; there is a notable increase over time in the proportion of sales accounted for by takeaway foods produced in the market's commercial kitchen; co-op members spend more on average per visit than nonmember customers. A successful market needs a balance between a small number of large-volume producers, who dominate sales with a handful of products, and a deep pool of smaller-volume producers, who bring a diversity of products to the market shelves. We conclude with a series of points that are of use to local food scholars, practitioners, and policy advocates.

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Disclosures

Mr. Mariola is a co-op member of Local Roots Market.

Mr. Schwieterman is the salaried executive director of Local Roots Market. He played no role in the gathering or organization of sales data, only in the interpretation of results.

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Keywords

Consumers, Cooperatives, Food Hub, Local Food, Local Market, Retail Sales

Introduction

If the official entry of a trend into broad public discourse is heralded by the cover of *Time* magazine, then the modern local food movement became ascendant with a red apple appearing on the March 12, 2007 cover bearing the words “Forget Organic. Eat Local.” The reasons for its rise to prominence are well documented. Local foods appeal to consumers because of their association with freshness, quality, nutrition, environmental sustainability, and community (Boys & Blank, 2018). The conventional food system continues a seemingly inexorable trend of becoming more technology- and capital-intensive, large-scale, and concentrated, while local food—typically grown on smaller-scale farms (Martinez et al., 2010)—is associated with alternative forms of production and consumption.

A decade ago, researchers identified a key barrier to the growth of the local foods sector: lack of an effective distribution infrastructure “for moving local foods into mainstream markets” (Martinez et al., 2010, p. 25). Food hubs emerged to act as a coordination vehicle for a wide variety of food producers and processors by playing the critical role of aggregator and marketer, which most producers lack time or resources to accomplish (Matson et al., 2013). In their early incarnation, food hubs consisted primarily of wholesale outlets or distribution hubs, in turn giving rise to a “new generation of community-based food hubs” that add social and environmental goals to their missions (Matson et al., 2013, p. 11).

With the earliest of this “new generation” of retail food hubs having passed the decade mark, a unique body of longitudinal data becomes available. Detailed consumer behavior tracked longitudinally can inform local market managers how best to position their stores as well as the food on their shelves. This paper examines consumer purchasing patterns spanning ten years at Local Roots Market and Café (“Local Roots”), a pioneering local food market in Wooster, Ohio, to add to our knowledge of how retail food hubs can harness consumer

preferences, improve market opportunities for small food producers, and galvanize the broader local food systems they are built to serve.

Literature Review

Local food demand is “one of the most important food-industry developments in the past twenty years” (Richards et al., 2017, p. 637), with predictions of continued robust growth (Boys & Blank, 2018). The reasons for this sustained demand are consistent across numerous studies. Topping the list of local consumer desires is food safety and quality—both typically associated with the greater freshness of local food—followed closely by concerns about environmental sustainability and support for local producers and economies (Berti & Mulligan, 2016; Feldmann & Hamm, 2015; Martinez et al., 2010).

Direct-to-consumer (DTC) outlets such as farmers markets and community-supported agriculture might have the highest public profile, but sales handled by intermediaries—retailers, wholesalers, and institutions—account for more than one-third of all local food sales (U.S. Department of Agriculture National Agricultural Statistical Service, 2016) and are the fastest-growing segment of the market (Richards et al., 2017). Within this intermediated local food system, food hubs have “blossomed and emerged as a logistical vehicle that facilitates a local food supply chain” (Matson & Thayer, 2013, p. 44). There are many operating definitions of food hubs in the literature (Berti & Mulligan, 2016, p. 8), but the common denominator is the “aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand” (U.S. Department of Agriculture National Agricultural Library, n.d., para. 1). The main difference among types of food hubs is whether the customer is an institutional buyer (e.g., hospital, restaurant) or an individual consumer.

A distinguishing feature of many food hubs is their status as “values-based food supply chains” that “seek to merge social-environmental mission objectives with efficiency gains” (Berti & Mulligan, 2016, p. 5) by “emphasizing vertical coordination

rather than integration throughout the supply chain in order to reach mutually beneficial aims” (Diamond & Barham, 2011, p. 103). Such statements may gloss over the difficulty of achieving goals that transcend financial profit, as the vast majority of community-oriented food hubs “struggle to meet non-economic social and environmental goals, while also becoming economically viable” (Cleveland et al., 2014, p. 29). Cleveland et al. (2014) suggest that we move away from the dualistic notion of food hubs as being either strictly “idealistic” or “mainstream,” and see them as hybrid forms that attempt to merge the community values of the former with the scaling and economic potential of the latter.

In this paper we will focus on retail food hubs, which combine the aggregation and on-site storage of a wholesale facility, the product diversity and local focus of a farmers market, and the shelf displays and point-of-sale system of a grocery store. There is evidence that the retail model is achieving increasing market share within the local food ecosystem. Low et al. (2015), for example, explore the curious phenomenon of a continued rise in the number of farms reporting DTC sales but a plateau in the growth of overall DTC sales. They argue that this can be partly explained by more local food flowing from farmers to retail outlets rather than directly to consumers. As of 2015, they reported 119 farm-to-consumer food hubs in the U.S., including 25 operating as cooperatives, 43 as non-profit entities, and 41 as for-profit private entities.

To meet their broader, values-based goals, food hubs must be financially sustainable, however; and to be financially sustainable they must appeal to shoppers. Our study thus rests on a fundamental assumption: “Identifying the source of consumer demand can enable food hubs and other local foods entities to tailor the marketing of their products to match the values of consumers” (Matson & Thayer, 2013, p. 44).

Much of the literature on food hubs attempts to articulate the factors that correlate with financial success. Berti & Mulligan (2016) conducted a comprehensive literature review and found three primary sources of success: (1) providing consistent quantities of local food, with (2) a sufficient variety of products, at (3) a price point that keeps them

accessible to a wide range of consumers. Another key to success is access to shipping and storage infrastructure, or “wheels and mortar” (Diamond & Barham, 2011). A 2010 USDA report noted the correlation between the success of small enterprises in local food supply chains and their ability to “make investments in processing and distribution infrastructure” (Hand, 2010, p. 18). Other success factors include the availability of up-front capital (Matson et al., 2012); a sufficiently large, trained, and paid staff, as opposed to overreliance on volunteers (Berti & Mulligan, 2016); and maintaining informal producer networks that provide more flexibility than strict contractual relationships with producers (Diamond & Barham, 2011).

Ultimately, the success of a local food hub with a retail sales model rests on building and sustaining consumer demand, and the literature provides several useful observations about what local foods consumers want. One is the integrity of the claims made by producers about growing methods or a food’s provenance. An analysis of eight U.S. food hubs notes the importance of being able to track and display the value-added component of each product, and draws a clear link to customer interest: “Preserving the identity of farm products through the distribution process has been critical to driving buyer and consumer demand and allowing the more successful food value chains to flourish” (Diamond & Barham, 2011, p. 111). Schahczenski and Schahczenski (2020) even advocate the use of emerging blockchain technology to move “beyond traceability to full transparency” in local food economies (p. 81).

Another market strategy linked to consumer interest is product diversification. In a literature review on local food systems, Berti and Mulligan (2016) identify the display of a sufficient variety of foods as one of the three most important growth strategies for retail food hubs. Similarly, a 73-article meta-analysis by Feldmann and Hamm (2015) found numerous instances of consumers identifying lack of product availability as a major barrier to their purchase of local foods. Much of consumer demand comes down to that central pillar of consumer studies: convenience. Printezis and Grebitus (2018) note studies spanning decades which demonstrate how much convenience drives con-

sumer behavior and, conversely, that distance to purchasing location is a significant barrier to consumption of local food. They conclude that local food hubs need to feature a wide variety of products in order to entice more one-stop customers.

However, most of these conclusions are based on inferences from the success or failure of food hubs, or on willingness-to-pay studies (e.g., Low et al, 2015; Printezis & Grebitus, 2018). Despite the clear role that consumer demand plays in a local food system, we know very little about actual buying patterns. Thilmany et. al assert that “research to track consumers’ evolving preferences and behaviors within [local] food systems ... is lagging” (2013, p.131). There has not been an empirical study to determine which products are attractive to local foods consumers and how these patterns have changed over time (Rysin & Dunning, 2016). Furthermore, much of the literature on short supply chains focuses on just one or a handful of food categories (Feldmann & Hamm, 2015). The “lack of market analysis” characterizing most local food system analysis (Berti & Mulligan, 2016, p. 9) leaves market managers with a dearth of useful information, because, as Feldmann & Hamm conclude, “it is difficult, if not impossible, to *infer* consumers’ actual behavior” (2015, p. 158; emphasis added).

“One way that scientific research... can contribute to a more sustainable food supply chain is to provide insights into consumer attitudes and preferences” (Wenzig & Grunchmann, 2018, p. 1). More detailed questions that would be of interest to market managers remain largely unanswered. Do buying patterns change seasonally? Which product categories are the most popular? Is there a preference for convenience foods over fresh produce? Do co-op members buy more than nonmembers? We intend to build on the research discussed above to answer such questions using ten years of comprehensive sales data from a single local foods retail market. We begin with a brief account of the founding and evolution of Local Roots Market.

History of Local Roots

The idea for Local Roots Market was hatched when a group of twelve, including farmers and business and nonprofit leaders, from Wayne County, Ohio, began meeting in January 2009 to

discuss how to boost the local food system and create new market opportunities for the region’s farmers and food producers. The project coalesced around a set of key principles: it would be a cooperative in which producers *and* consumers could be paying members; it would be a year-round, indoor retail establishment; it would operate on a consignment model, taking a minimal commission in order to return the most possible back to the producer; and it would rely heavily on volunteer labor to keep costs down, with just a single full-time market manager.

The group leased and renovated a vacant building in downtown Wooster and opened its doors in January 2010. In addition to food produced by local farmers and processors, the market featured an artisan room with locally produced crafts and a café which purchased ingredients from the market whenever possible. It also served as a community hub, hosting luncheons and meetings for a variety of businesses and local organizations. In its early years Local Roots made appearances in regional and national media (Black, 2012; Goodman, 2012; Merrigan, 2012) and was visited by the Ohio Secretary of Agriculture in October 2010 to highlight the potential of local foods marketplaces. The following year the market received a grant to build a commercial kitchen, which expanded the capacity to produce prepared foods for its coolers and hot foods for the café.

As it has grown, the market has faced fiscal challenges and undergone organizational changes. Its volunteer workforce has slowly given way to more paid staff, today numbering 16 including an executive director. The commission rate for food products has been revised several times in order to keep pace with overhead costs, from an across-the-board 10% combined with a rental fee for shelf space at the outset, to 15% plus shelf space rental a few years later, and then eliminating the rental fees and replacing them with a three-tiered commission structure that holds to the present day: 18% for produce, 20% for fresh foods from the commercial kitchen, and 25% for shelf-stable goods. Local Roots has also increased its use of the traditional retail model in which the market takes ownership of and resells certain products, although the vast majority of sales are still on consignment. One

constant throughout has been the oversight of a board of directors, whose members are elected for two-year terms and meet every other month.

Applied Research Methods

Local Roots uses a point-of-sale (POS) software called Retail Edge that specializes in small retail establishments. We exported every POS barcode transaction that had taken place at a Local Roots cash register from Jan. 1, 2011 through Dec. 31, 2020 to a Microsoft Excel file, then cleaned the data through the following steps:

1. Removed any non-food sales (e.g., artisan crafts, branded t-shirts, vegetable seedlings), with the exception of flowers and Christmas wreaths, which we retained and categorized as produce since they are minimally processed items grown by local farms.
2. Removed all zero-dollar sales (e.g., free cup of water with a meal)
3. Removed all items purchased internally by the market (e.g., the market would purchase cream off the shelf to use in coffee ordered at the front counter) or the café (e.g., the café managers would purchase beets from within the market to use in a beet salad). Our reasoning was two-fold: we did not want to double-count the sale of a particular item (e.g., the beets would be sold once to the café, and then sold

again in the form of the beet salad), and we wanted to limit our analysis to food sales to consumers.

The cleaned dataset contained 1,100,593 data points, each representing the sale of a food item. That is, if a customer came to the counter with three potatoes, two heads of lettuce, and one box of cookies, this would result in three data points, one per distinct product (bar code). We then assembled a list of every unique bar code in the database, allowing us to code each item in the market by its food category. There were a total of 7,726 unique items. For initial guidance on coding, we used a categorization scheme created by the U.S. Department of Agriculture as part of its “What We Eat in America” project.¹ We then triangulated this scheme with the ways that Local Roots categorizes their products within Retail Edge, making changes as deemed appropriate to reflect categories that would be most meaningful to local food market managers. Each item was ultimately coded into one of eight categories (Table 1).

Finally, we performed a series of data aggregations and calculations. We did not perform calculations for statistical significance, since we used the complete set of food sales during the ten-year period rather than a sample. We organized the results by means of a series of questions, moving from broader “snapshot” questions to more specific analytical questions that would be of particular interest to market managers.

Table 1. Coding Categories

Produce	Fresh vegetables, fruits, flowers, and wreaths
Meat	Cuts of meat and meat products (e.g., meatballs), frozen or refrigerated
Eggs	Fresh eggs
Dairy	Fluid milk and cultured dairy products such as cheese and yogurt
Shelf-Stable	Packaged foods not in a cooler, such as chips, salsas, granola, flour, dried beans, bottled sauces, and condiments
Baked Goods	Freshly baked products including breads, buns, cookies, and scones
Takeaway Foods	Processed foods made in the commercial kitchen and sold from the cooler or sold hot from the café
Beverages	All bottled and canned beverages

¹ See more about the “What We Eat in America” project at <https://www.ars.usda.gov/nea/bhnrc/fsrg>

Results

1. Changes to Annual Food Sales Over Time

We began by calculating annual food sales at Local Roots, aggregated across all eight food categories (Figure 1).

Three trends stand out. First, sales notably increased in the first three years: a 14% increase from 2011 to 2012, and an 8% increase from 2012 to 2013, as the market was gaining name recognition in the community and increased foot traffic. Second, sales plateaued for the next five years, with one annual gain of greater than 5% (2014–2015), two years of gains of less than 5% (2016–2017 and 2017–2018), and two years of declines (-2%, 2013–2014, and -3%, 2015–2016). Third, for the past two years the market has seen substantial growth in sales: +18% from 2018 to 2019, and +89% in 2020, when it crossed the \$1 million mark sales for the first time.²

The growth in 2019 and 2020 is striking. Crossing the \$500,000 sales mark in 2019 is a major milestone. An analysis of over 100 food hubs found that every institution classified as “not financially viable” had one thing in common: revenues of less than \$500,000 (Fischer et al., 2015, p. 106). The reasons for such a dramatic rise in sales at Local Roots are complex and difficult to tease apart without survey data from consumers, and that is not the purpose of this study. However, we can investigate whether other consumption patterns were correlated with sales figures in order to provide further insights.

2. Seasonal Patterns in Food Sales

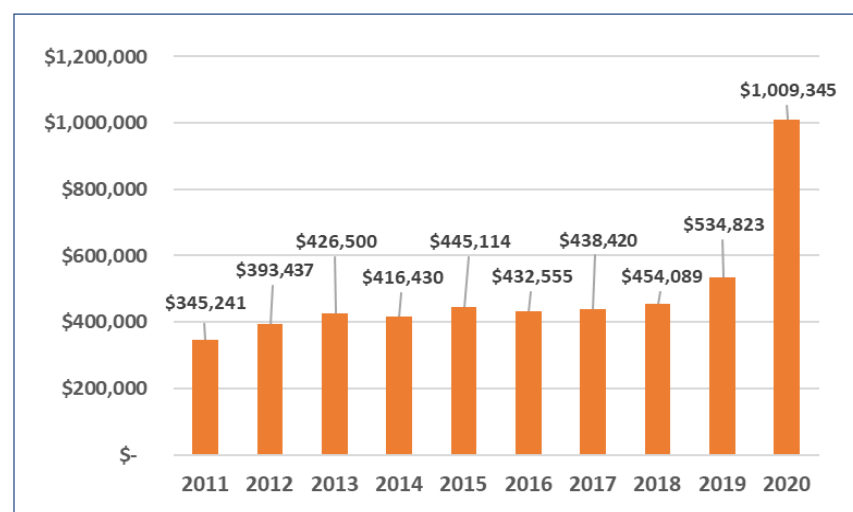
To optimize supply as well as to be able to plan for staffing allocation, maintenance projects, and capital improvements, it is useful for a food retailer to know whether there are predictable seasonal fluctu-

ations in sales. Table 2 presents month-to-month changes in overall food sales, and Figure 2 presents a graph of the same data, averaged for each month across ten years.

Comparing the average change for each month to its mean absolute deviation (“average deviation” in Table 2) gives a sense of the variability for a given month across the ten-year period. Some months are strikingly consistent: for example, all ten Januarys featured a sharp decline in sales from the previous December (average -25%, with a range of -8% to -27%), while all ten Marches and all ten Octobers featured a healthy increase in sales from the previous February and September, respectively. March has an average gain of +22%, with a range from +11% to +40%, and October has an average gain of +13%, with a range from +7% to +20%. Other months are less predictable, such as August and November, each of which has a range extending from negative double-digits to positive double-digits.

Some of the consistent month-to-month changes conform to common sense. A steep drop-off in sales from holiday season shopping in December to the leaner month of January is a phenomenon across all retail sectors (Gallup, 2017). Local Roots is no exception, with the sharpest absolute month-to-month change occurring

Figure 1. Annual Food Sales at Local Roots, All Food Categories, 2011–2020



² All values in this paper are in US dollars.

Table 2. Change in Food Sales from the Previous Month, Averaged 2011–2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011		-14%	26%	23%	-5%	-1%	19%	5%	1%	10%	-10%	-1%
2012	-24%	4%	27%	-5%	15%	1%	-7%	16%	-22%	15%	-5%	3%
2013	-8%	-19%	23%	-4%	17%	2%	11%	4%	-16%	15%	-3%	-1%
2014	-37%	1%	16%	14%	17%	-3%	6%	2%	-15%	14%	-2%	8%
2015	-24%	-9%	23%	3%	10%	5%	3%	-13%	-6%	14%	-3%	19%
2016	-24%	-4%	11%	1%	-4%	3%	-6%	11%	-15%	9%	-2%	15%
2017	-24%	-13%	25%	10%	13%	-6%	4%	-3%	-12%	7%	4%	4%
2018	-28%	7%	15%	-2%	18%	-4%	9%	-5%	-20%	20%	10%	15%
2019	-35%	9%	16%	6%	13%	-3%	11%	-3%	-17%	13%	11%	10%
2020	-20%	-5%	40%	13%	34%	0%	18%	-4%	-14%	15%	-2%	18%
Average	-25%	-4%	22%	6%	13%	-1%	7%	1%	-14%	13%	0%	9%
Avg. Dev.	6%	8%	6%	7%	7%	3%	7%	7%	5%	3%	5%	6%

between December and January. Other changes are more puzzling. For example, what accounts for the notable drop-off in sales between August and September, or the notable increase between February and March? Our data do not allow us to answer these questions, but their consistency is striking and presents valuable information that market managers could leverage. Predictable surges in demand (such as from February to March) can be anticipated by ramping up supply. More crucially for financial viability, predictable dips in demand (such as from December to January or August to September) can be countered with sales, promotions, and other marketing techniques. As Davis (2018) notes, while the “January sales

slump” is economy-wide and predictable, “in many cases it’s made worse by self-fulfilling prophecies, driven by a lack of marketing activity and active customer engagement tactics” (para. 1).

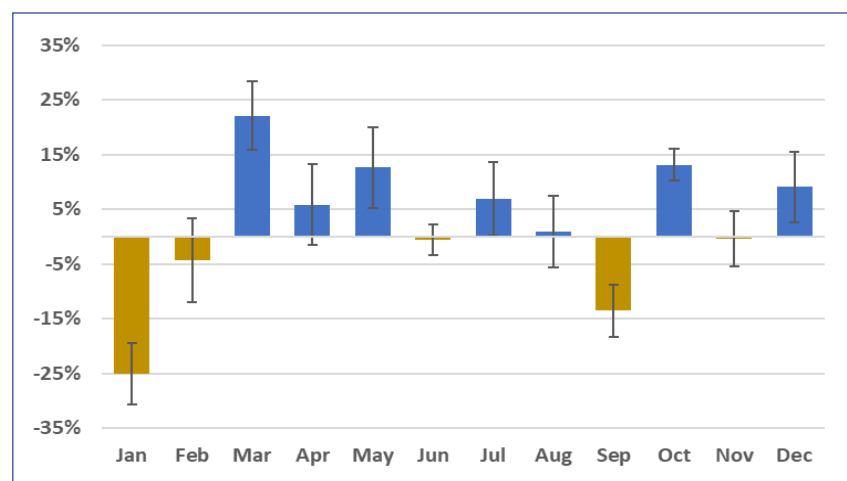
3. Patterns in Sales by Food Product Category

For a successful food hub, Matson and Thayer ask, “What mix of producers and products is necessary?” (2013, p. 47). A food marketplace needs to be stocked with an optimal mix of products conforming to the distribution of consumer desires. Too many of one type of product, or not enough of another, may stifle sales and reduce foot traffic. The meta-analysis of 73 studies by Feldmann and Hamm found numerous instances of consumers indicating a preference for certain locally grown products over others, ranging from fresh produce to animal products (2015).

Table 3 presents the total number of items sold and the total sales in dollars for eight food categories, summed across the ten years of the study.

Produce accounts for by far the largest percent of items sold (29%), while baked goods and takeaway foods account for an additional 19% each. The three animal product categories (meat, dairy, and eggs) together

Figure 2. Average Change in Food Sales from Previous Month, 2011–2020



account for 17% of items sold.

Comparing total items sold to total sales dollars generated, some items sell in large quantities but generate a much lower percentage of total sales, while others are the inverse, generating a disproportionately higher percentage of sales. Produce falls into the former category, accounting for nearly one-third of items sold in the market but less than one-fifth of total sales dollars. Baked goods are similar, though with a smaller gap: 19% of all items sold in the market have been baked goods, generating just 16% of total sales dollars. The inverse is true of meat, shelf-stable foods, and takeaway foods. The “value differential” for meat is nearly double, as meat products account for 5% of all items sold but 9% of all sales dollars. Takeaway foods are the leading category in terms of dollars generated, accounting for nearly a quarter of all sales dollars but less than one-fifth of all items sold. Shelf-stable foods account for 13% of items sold but one-fifth of all sales dollars.

In large part, these data conform to anecdotal observation: meat products are generally more expensive per unit than most other items, while the produce category includes many items (e.g., lettuce, cilantro, apples) that sell for far less per unit. Market managers could interpret the data in different ways, depending on the marketing philosophy of the institution. Produce is clearly a major generator of consumption, as nearly one-third of all items sold at Local Roots have been fruits, vegetables, or flowers. Despite the lower percentage of sales dollars that it generates, produce is a major

driver of foot traffic. Conversely, higher dollar values, and presumably profits, can be generated from meat products, takeaway foods, and shelf-stable foods.

Have the trends shifted over time? Figure 3 presents each food category’s total sales by year.

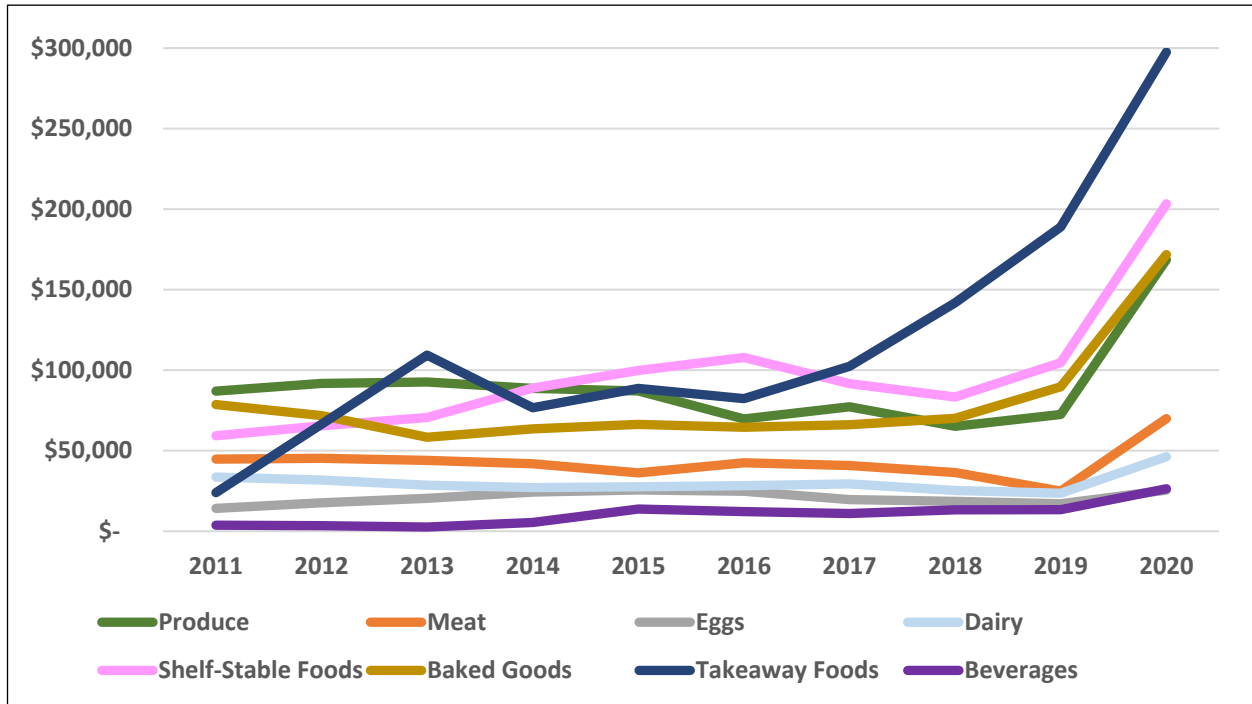
Measured as a percentage of total sales, many categories display stability over time. For example, baked goods fluctuated between 14%–18% of total food sales every year except 2011, even in 2019 and 2020 when overall sales of baked goods went up along with market sales in general. Similarly, shelf-stable foods experienced some fluctuation in absolute sales, but apart from the anomalous year of 2016 they have stayed within 17%–22% of total sales each year. Other categories have seen more notable shifts, both in their absolute and relative sales. Up to 2020, dairy sales declined from \$33,605 in 2011 (10% of total sales) to \$23,567 in 2019 (less than 5% of total sales). Meat sales followed a similar pattern, declining from \$44,779 in 2011 (13% of total sales) to \$24,914 in 2019 (5% of total sales). While not as drastic, produce sales also declined to 2020, from \$87,013 in 2011 (25% of total sales) to \$72,480 in 2019 (14% of total sales). The three categories—dairy, meat, and produce—did experience big upticks in sales in 2020; however, as a percentage of total sales they hardly budged (dairy 5%, meat 7%, and produce 17%).

The chart clearly displays which category has had the most dramatic rise in sales, both in absolute figures and as a percentage of the whole: takeaway foods. Other than 2011, when the commer-

Table 3. Number of Items Sold and Total Sales by Food Category, 2011–2020

Food Category	Items Sold		Sales	
	#	% of total	\$	% of total
Produce	322,432	29%	\$900,395	18%
Meat	53,608	5%	\$426,487	9%
Eggs	65,633	6%	\$207,779	4%
Dairy	64,735	6%	\$301,435	6%
Shelf-Stable Foods	144,611	13%	\$974,852	20%
Baked Goods	211,860	19%	\$800,948	16%
Takeaway Foods	213,177	19%	\$1,178,010	24%
Beverages	24,536	2%	\$105,092	2%
Totals	1,100,593	100%	\$4,894,998	100%

Figure 3. Annual Sales by Food Category, 2011–2020



cial kitchen had not yet been installed, this category—representing either hot food sold at the lunch café or foods processed in the commercial kitchen and sold in the market’s coolers—has risen from \$66,454 in 2012 (17% of total sales) to \$297,515 in 2020, accounting for nearly 30% of total sales. The rise in prominence of takeaway foods closely tracks a concerted effort on the part of the market to cultivate more production of foods in the commercial kitchen and to increase sales of hot lunches at the café, including the introduction in 2017 of a weekly rotating roster of chefs, each making their signature lunch on the same day each week. There is thus a compelling case that consumers respond positively to the marketing of more convenience/takeaway/café food produced in-house by local vendors.

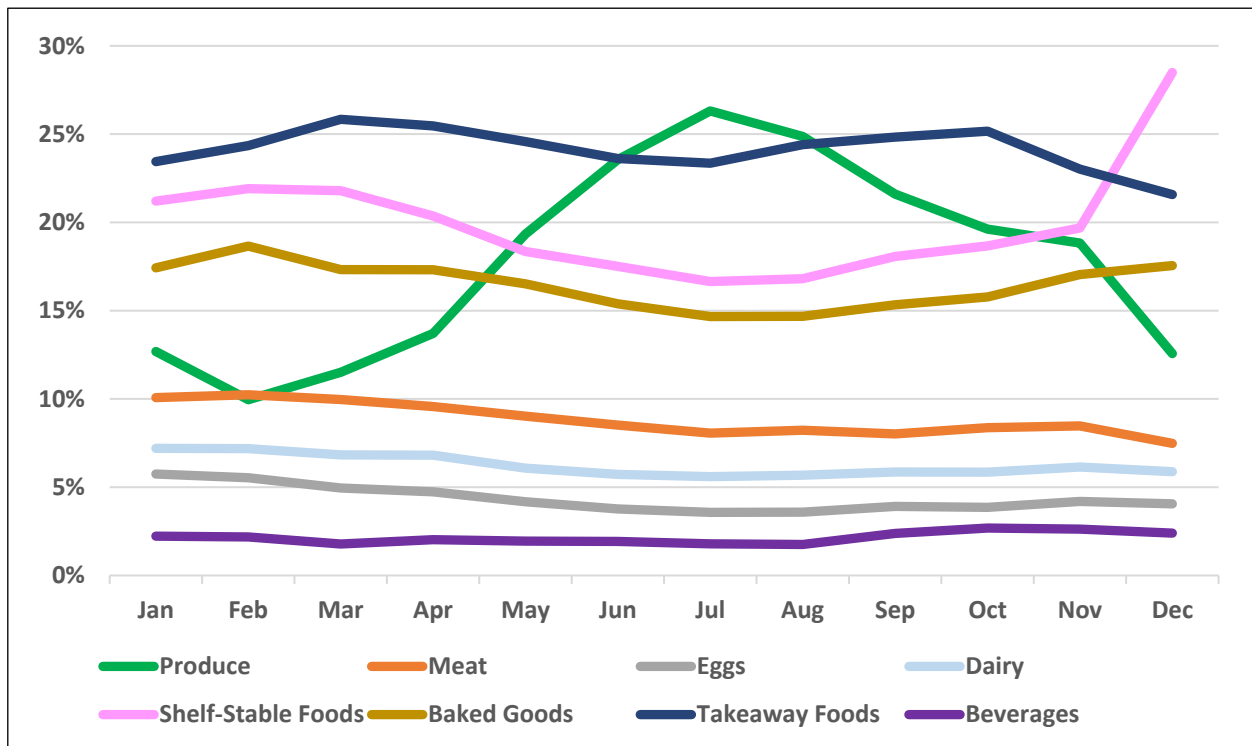
A final question we can ask in this category is whether the distribution of sales across product categories changes from month to month. Figure 4 presents sales for each food category as a percentage of total sales for each month.

With just two exceptions (produce and shelf-stable foods), categories are consistent from month to month. Besides those two categories, no cate-

gory features a difference between its highest month and its lowest month greater than four percentage points. The fluctuations exhibited by produce and shelf-stable foods tell us two things, one predictable and the other more interesting. Predictably, produce sales ramp up from April through mid-summer and then slowly dissipate until November, when they fall off sharply. The highest month for produce is July, with 26% of all sales, while the lowest month is February with just 10% of sales. One would expect this of virtually any local foods market in the temperate Midwest, where even the most rigorous season-extension techniques cannot maintain a bounty of fresh produce in the winter months.

Which categories “pick up the slack” when produce sales fall off? In the case of Local Roots, the answer is clearly shelf-stable foods, which go from a low of 17% in both July and August to a high of 28% in December. There are also minor upticks in the percentages accounted for by meat (from a summer and fall average of 8% to a winter average of 10%) and eggs (from 4% through summer and autumn to 6% by February). Converting this into marketing advice, we would suggest that

Figure 4. Sales by Category by Month, as Percentage of All Food Sales, 2011–2020



the produce deficiency from late fall through early spring should be countered by a greater feature of pantry items such as flour, honey, maple syrup, and dry beans, and snack foods such as chips, sauces, and salsas.

4. Revenue Generation at the Café

A feature that many local food markets might consider is an in-house café or deli serving hot meals and/or fresh takeaway food. A café serves the broader mission of featuring unique food items from the region, and it generates additional foot traffic and revenue. With the help of a local foods market consultancy in Ann Arbor, we did an internet search of six prominent local food markets in the eastern U.S. and found that all of them have an in-house café or deli.³ A startup market may wonder: Just how much revenue can such a café generate relative to non-café foods?

One of the first major initiatives at Local

Roots was the creation of a lunch café, whose primary purpose was to showcase local produce, meat, and other foods. The café has operated under two different business models. From its start in 2011 until 2017 it was operated by the market, generating direct revenue. Those making and serving the food were either market staff or volunteers, costs were incurred by the market, and all revenue went directly to Local Roots. In 2017, the market switched to a chef-producer model, in which different local chefs have one day of the week when they are featured on the menu, for which they produce the food, incur all direct costs, and claim all the revenue minus a 20% commission.

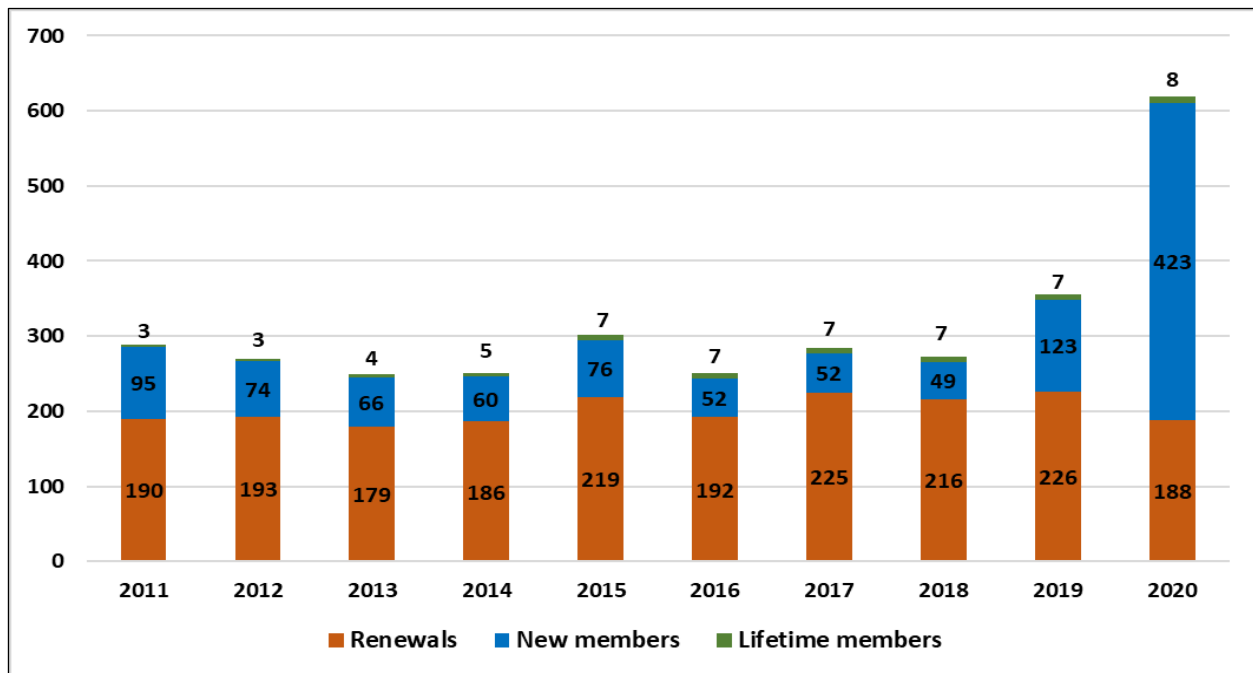
Table 4 presents data on café sales from 2011–2016, when café revenues went directly to Local Roots. This is only a portrait of direct revenue generation; it does not take into account costs, and therefore is not a calculation of profitability. What is notable is that, other than 2011 (when the café

³ The six markets we searched were Acorn Farmers Market and Café (Manchester, MI); Agricole Farm Stop (Chelsea, MI); Argus Farm Stop (Ann Arbor, MI); Bloomingfoods Co-op Market (Bloomington, IN); Random Harvest Market (Craryville, NY); and The Wild Ramp (Huntington, WV).

Table 4. Revenue from the Market Café, 2011–2016

	2011	2012	2013	2014	2015	2016
Revenue	\$18,208	\$57,557	\$96,844	\$57,512	\$55,071	\$49,692
Percentage of Total Food Sales	5%	15%	23%	14%	12%	11%

Figure 5. Annual Number of Members by Membership Category, 2011–2020



started midyear), the café generated over 10%, and at its height nearly one-quarter, of annual food sales at Local Roots.

5. Member Sales Versus Nonmember Sales

A cooperative is one of several business models that local food hubs can use, each with its own tradeoffs (Matson et al., 2013). As Diamond and Barham state, “nonprofits and cooperatives both can play key roles in value chain development, but should recognize their organizational competencies and limitations” (2011, p. 101). A local food hub organized as a members-based cooperative may want to know the degree to which its sales are driven by paying members, in order to balance the financial and community benefits of having paying members on the one hand, with the staffing costs

incurred to recruit new members and renewals on the other.

Local Roots has been a membership-driven co-op since its inception. An annual membership or renewal costs \$50, and a lifetime membership costs \$1,000. Membership perks include a 1% savings on all products in the store, weekly special discounts, and dividend payouts if the market’s annual profits allow. Figure 5 displays the number of members in all three categories from 2011–2020.⁴

The numbers reveal that Local Roots has a faithful base of members, with 179–226 members renewing each year. New memberships came at a range of 49–95 per year until 2019. In 2019 and 2020 the market managers made an explicit priority of gaining new members, resulting in a surge to 123 new members in 2019 and a more than 200%

⁴ Lifetime member numbers are cumulative. For example, the three lifetime members in 2011 are the same three as in 2012; in 2013 a single lifetime member was added; etc.

increase to 423 new members in 2020. It might be asked whether this surge in new members was driven by COVID-19, given the impact that the pandemic had on food supply chains, causing substantial increases in bulk buying and online ordering from local food markets (Thilmany et al., 2020). COVID likely had a role, but the increase began in 2019 prior to the pandemic, and, more tellingly, the biggest month-to-month increase occurred in June 2020, when a promotional campaign instituted by managers drove the number of new and renewed memberships from 18 and 9, respectively, in May 2020 to 127 and 66, respectively, in June.

A note of interest to market managers is that, despite the relative constancy of membership renewals over the decade, they did not grow at the rate that they would have if every new member renewed every year. Renewals would seem to be a “low-hanging fruit” where management can focus efforts. The membership gains in 2019 and 2020 show that it is possible to rapidly incentivize more individuals to join for the first time; incentivizing lapsed members to renew is a different effort.

Is it worth the time and effort to incentivize customers to become members? Aside from reve-

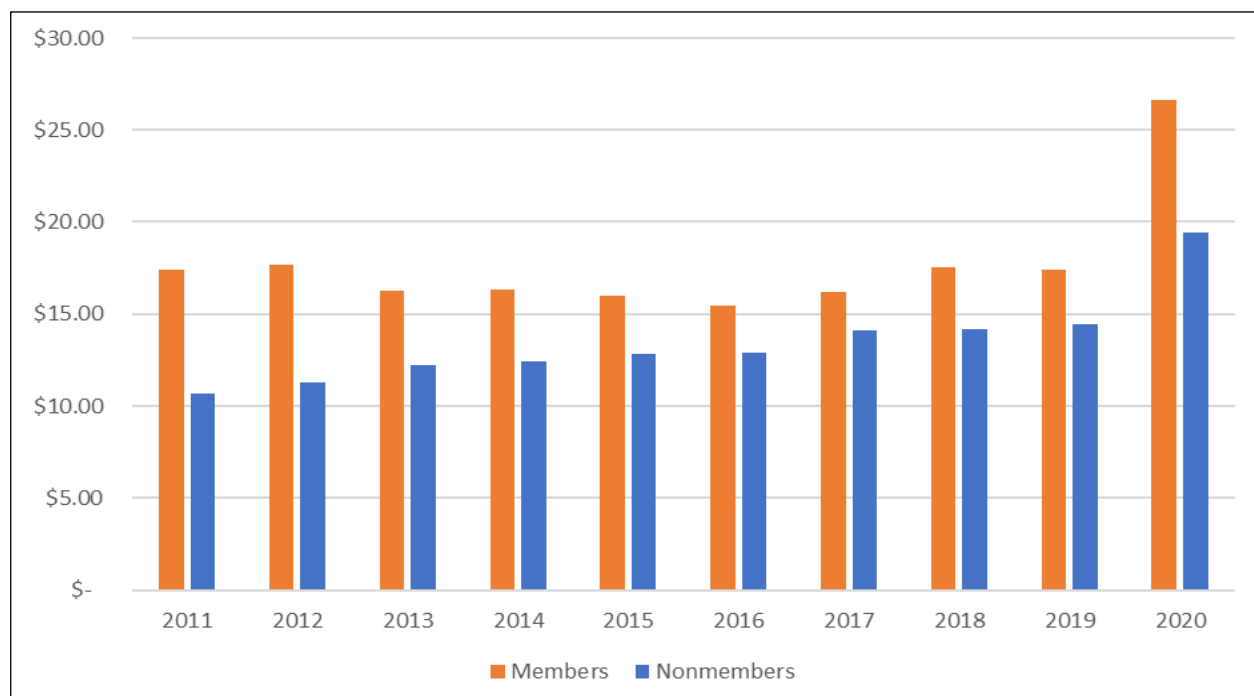
nue from membership itself, do members actually spend more at the market than nonmembers? To answer this question, Figure 6 compares the average dollar value of each sales receipt for members and nonmembers. Across the ten years, members on average spend 33% more per market visit than nonmembers, with a range of 15% more (2017) to 63% more (2011). Across the ten-year period, the average value of a sales receipt for members was \$17.69, with a range of \$15.45 to \$26.63, while the average for nonmembers was \$13.44, with a range of \$10.64 to \$19.45. This is in addition to the value of the total annual membership fee itself, which can exceed \$10,000 per year.

6. How Widely Are Sales Distributed Across Producers?

Shifting from demand to supply, a market startup may wonder how many major vendors it needs, and how many smaller vendors should supplement the sales of the major sellers. In other words, “What scale of producers is necessary to support the functions of a food hub?” (Matson & Thayer, 2013, p. 46).

To answer this question, we break all vendors

Figure 6. Average Value per Sales Receipt, Members vs. Nonmembers, 2011–2020



in a given year into the following sales categories: <\$1,000, \$1,000–4,999, \$5,000–\$9,999, \$10,000–\$19,999, \$20,000+. Figure 7 reports the total number of vendors in each category for each year.

The largest number of vendors in every year except 2020 is those selling less than \$1,000. Combining this category with the next largest, we see that the vast majority of producers sell less than \$5,000 of product each year (from 68% to 88% in a given year, with an average of 80%). In other words, food sales are dominated by a relatively small handful of high-volume producers but sup-

plemented by a much larger number of smaller producers.

To what degree do the high-volume sellers dominate market sales? Figure 8 presents the percentage of total annual sales accounted for by vendors in the same five sales categories. The percentage of sales accounted for by the two highest sales categories (those selling more than \$10,000 per year) hovered at roughly one-third from 2011 through 2017, then rapidly increased to 51% in 2018, 55% in 2019, and 76% in 2020. The pattern correlates strongly with the growth in overall market sales, as seen in Figure 1.

Figure 7. Number of Vendors by Annual Sales Category, 2011–2020

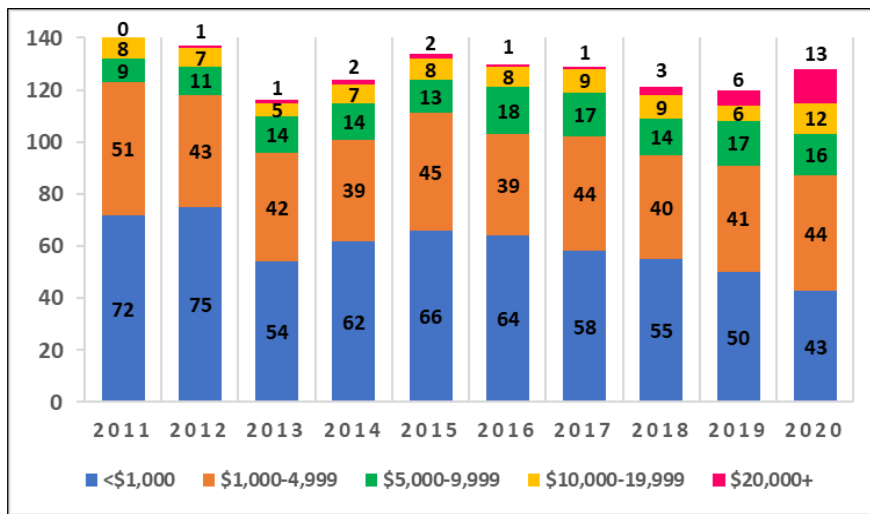
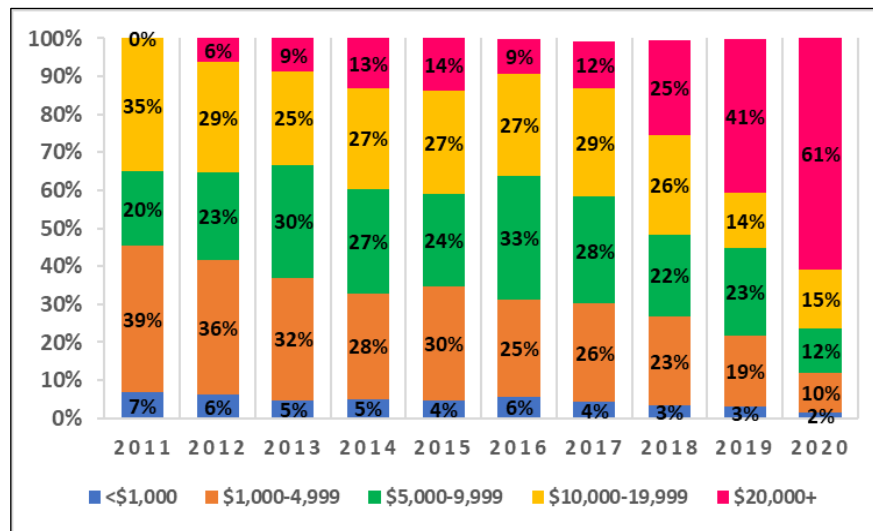


Figure 8. Percentage of Total Market Sales by Vendor Annual Sales Category, 2011–2020



There are multiple ways to interpret this information, based on one's beliefs about how a local foods market should operate. The dominance of a few large-volume vendors can mean full-time livelihoods for some local producers who would otherwise not have an outlet for their products. For example, taking just the year 2020, six producers had sales over \$49,000. On the other hand, it also means a concentrated, top-heavy market, which may cut against a belief in producer equity. The large number of sellers achieving sales only in the thousands of dollars might mean that the market is not proving to be a source of economic livelihood for scores of local producers. However, it is also the case that most sellers also vend their products at other markets (e.g., wholesale distributors, farmers markets, online sales) and do not intend for Local Roots to be their sole source of income. For these producers, Local Roots represents a form of market

diversification to supplement household income. A qualitative study of motivations and outcomes of local food vendors would help to shed more light on this question. On this note, we turn to a series of concluding thoughts.

Conclusions

A case study of a single institution is by its nature limited in generalizability. No two local foods markets will have the same customer profile, the same set of farmer vendors, or the same foods available at the same times. However, the local foods literature makes clear that there is much to be learned from individual markets that have proven over time to be sustainable. Local Roots has provided consulting to numerous startup local food hubs, and at least one of these “sprout” markets has gone on to offer its own consulting services to a new generation of startups.

In that spirit, we conclude by asking, What insights emerge from our data about consumer purchasing patterns that would be the most useful to other local food hub startups as they seek to capture some of the food economy and contribute to wider community development efforts? We present four practical lessons derived from a decade of experience at Local Roots, and a more speculative reflection on how to craft meaningful public policy that builds on these lessons.

1. There is year-round demand for local food that fluctuates in predictable ways.

The Local Roots experience should help put to rest fears that there is not enough demand to sustain a year-round local foods market. But it is worth knowing that demand fluctuates over the course of a year in a consistent pattern. When produce availability declines after the main growing season, a market will want to stock its shelves with stable foods and pantry items, its coolers with eggs, and its freezers with meats.

2. A market thrives with many vendors of many sizes selling many different products.

The bulk of revenue at Local Roots is driven by a handful of large-volume vendors, notably of baked goods and takeaway foods. But this small number of product lines is supplemented by a much larger

group of smaller-scale vendors, whose products bring variety to the market shelves and help sustain foot traffic. Both sets of producers are vital. A marketplace teeming with variety is visually appealing and fills more gaps in the home kitchen, making the customer less likely to travel to a different store for certain products.

3. Takeaway food sells.

The family of products that has seen the most marked increase in sales at Local Roots is takeaway foods, notably those prepared on site in the commercial kitchen and made available in coolers at the store. A commercial kitchen supplying prepared foods at a local market is a major catalyst for sales and foot traffic.

However, we would also note that this category of food comes with two challenges. It can be economically unfeasible for the producers of takeaway foods to utilize local ingredients. The availability of local products at wholesale prices is a solution that local food policymakers should prioritize. In addition, takeaway foods require large amounts of packaging. We encourage markets and policy advocates to think creatively about mitigating the creation of so much disposable waste.

4. Members spend more at the market than nonmembers.

There is a small administrative cost associated with recruiting and retaining paying members of a cooperative, but that cost pays for itself many times over, not just in the form of membership dues but in the fuller shopping baskets that members bring to the counter. Clearly there is some causal ambiguity here. Does the membership itself incentivize spending more dollars, or is it a pre-existing commitment to local food? Would members buy the same amount even were there no membership program? We cannot say with certainty, and this would be excellent material for a follow-up study. Based on years of anecdotal experience, we feel that the paid membership does tighten the bond between consumer and market, incentivizing increased patronage whether monetarily or morally. If nothing else, the revenue from membership dues alone is substantial—at current membership rates at Local Roots, it amounts to over \$30,000 per year.

5. Local food policy councils should think holistically and strategically.

Not every town or county has a local food policy council; Wooster, in fact, does not. However, where food policy organizations can influence local markets, our data suggest several policy prescriptions, such as to incentivize vegetable, fruit, and animal producers holistically, rather than focusing on one sector, and to recognize that producers and processors of different scales have different marketing needs—not every small producer wants to become a large producer. A third suggestion was hinted at above: a wholesale local food distribution hub coupled with a retail outlet creates synergies and potentially lowers costs for vendors and consumers alike.

The bottom line is that a diversified agricultural base is as important as a diversified marketplace, so policy advocates should think both strategically and holistically: subsidize season extension techniques for produce growers, but also enhance marketing assistance for grass-fed meat and local egg production; work with retail markets to help build foot traffic, but also with wholesale outlets such as produce auctions to create another node in the local food ecosystem; work to lower land access barriers for beginning farmers, but also lower market access barriers for populations that the local food movement has historically overlooked. We return to this final theme below as we briefly propose several further directions for local foods scholarship.

Future Research Directions

While there are scores of research threads arising from the ongoing development of the local foods marketplace, we set out three that we suggest are most fruitful for future researchers.

Comparative Demand Analysis

Numerous local food retail markets are approaching the same ten-year milestone as Local Roots, presenting researchers with a wealth of data about consumer preferences, farmer responses to demand signals, and other market patterns. The data will allow analysts to build on the analysis presented here by comparing consumption patterns across different markets, business models, and

locations. Do seasonal fluctuations in sales and food preferences hold across geographic regions? What is the best business model for an in-store café? Which is more profitable, a consignment model or a resale model? Which is more attractive to farmers? What is the tradeoff between stability of supply and risk of product loss when holding inventory? These are just a few of the many questions that a comparative study using datasets from multiple markets could investigate.

Supply and Marketing Dynamics

The data analyzed for this paper provide only one side of the economic equation: consumer demand. They do not tell us about supply or the many iterations of marketing that affect sales, from what was on the shelf at the time a given product was purchased, to how it was displayed, to its level of freshness, to how many different vendors were selling that particular type of product. In other words, knowing that strawberries outsold apples may tell us what consumers purchased, but it does not inform us whether there were three vendors of strawberries or only one, or whether the strawberries were piled in a shiny pyramid while the apples were off in a corner, or indeed whether both fruits were even on the shelves at the same time. Our second recommendation for future research is the most involved and ambitious: that researchers gather data that allows a deep dive into the impacts of supply dynamics, marketing strategies, display logistics, advertising, and promotions on local food consumption. At the very least, an inventorying system that tracks both incoming supply and purchases—which the systems at most local food markets, including Local Roots, currently do not do—would allow for more fine-grained correlations and relationships to be revealed.

Community Development Implications

A theme only hinted at in this paper is the accessibility and affordability of local food. There are several nested questions here of interest to practitioners and policy advocates. How accessible—logistically and financially—is local food to low-income or other marginalized populations? Where accessibility barriers have been lowered, how frequently do low-income consumers seek out local

foods? That is to say, what kinds of cultural barriers exist alongside economic and logistical barriers that prevent local foods from having a wider reach? And what kinds of incentive programs or other marketing efforts can local food markets develop to achieve a wider reach?

Broadening out to the community development level, what are the ripple effects that greater accessibility and affordability could have on the larger community? We have an increasingly fine-grained understanding of the “what” of local foods consumption, but we have work to do on the “why” and the “how.” Local food graced the cover

of *Time* magazine over ten years ago for a reason: it is an enticing and sustainable way to connect the consumer and the local producer through fresh, high-quality food. It can also mean a new livelihood for small farms and food makers. Can we now widen that sphere of connectivity to include those historically underserved by the local foods movement?

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Differences in Supplemental Nutrition Assistance Program (SNAP) participation among Oklahoma counties

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Abstract

The Supplemental Nutrition Assistance Program (SNAP) is a federally funded and state administered program to combat food insecurity. Analyzing factors in SNAP participation is important to

understanding consumption in food systems and supporting community development. As of 2019, 565,900 Oklahomans participate in the SNAP program, approximately 84% of those eligible for the program. This leads to two questions: why do those who are eligible participate, and how can we better reach those who do not? We analyzed county-level SNAP participation among the income-eligible to identify explanatory characteristics of SNAP usage. Data from sources such as the U.S. Department of Agriculture Economic

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Author Note

A preliminary draft of the paper was presented at the 2019 North American Meetings of the Regional Science Association International. The basis of this research was Mckenzie Carvalho's undergraduate honor thesis.

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Research Service (USDA ERS) and the U.S. Census Bureau were used to perform a regression analysis on 12 variables, such as store access and number of dependents. The percentage of households with children under 18 and the unemployment rate are associated with increases in SNAP participation among those eligible. Store access and rurality are associated with a decline in SNAP usage. These findings will aid policymakers, SNAP administrators, and outreach education groups in improving program participation by targeting groups susceptible to food insecurity and with low SNAP usage who could benefit from participation.

Keywords

SNAP, Welfare, Supplemental Nutrition, Food Insecurity, Food Assistance, Reducing Hunger, Poverty

Introduction

Food insecurity, the “limited or uncertain availability of nutritionally adequate and safe foods or limited and uncertain ability to acquire acceptable foods in socially suitable ways” (USDA ERS, 2020b, para. 4), is a severe problem in Oklahoma. From 2016 to 2018, 15.6% of the Oklahoma population experienced food insecurity, higher than the national average of 11.7% (USDA ERS, 2021). Only 11 other states had food insecurity rates above the national average (USDA ERS, 2021).

Government nutrition assistance programs play an important role in combatting food insecurity. A variety of broad and more targeted programs are available to provide support for food-insecure U.S. households, such as the Supplemental Nutrition Assistance Program (SNAP) (Gundersen, 2018; Gundersen et al., 2017). SNAP is a federally funded and state-administered program that assists low-income households with purchasing food for a nutritionally adequate diet (Congressional Research Service [CRS], 2018). Ratcliffe et al. (2011) suggest that participation in SNAP reduces the likelihood of being food-insecure by 30%, due to transferring resources to households to help them specifically purchase food. To participate in SNAP, a household’s gross income must be at or below 130% of the poverty line or its net income at or below 100% of the poverty line (Hunger Free Oklahoma, 2021).

Work-related requirements mandate certain household members to be registered for work, accept suitable job offers, and actively be looking or training for a job (CRS, 2018). Categorical eligibility allows certain groups participating in other welfare-type programs to be eligible automatically for SNAP benefits (CRS, 2018). Oklahoma does not require a lack of drug offenses or a criminal record to be eligible for SNAP (Providers, 2021). This Oklahoma-based research thus focuses on SNAP due to its wide scope of eligibility and the significant number of Oklahoma participants.

Although SNAP is a federal program, participation is voluntary and varies across states. According to the Center on Budget and Policy Priorities (2020), 84% of eligible individuals in Oklahoma participate in SNAP as of 2017. This is a relatively high percentage of SNAP participation compared to some neighboring states: 75% of eligible individuals participate in Texas, 71% in Kansas, while between 95% and 100% of eligible individuals in New Mexico participate (Center on Budget and Policy Priorities, 2020). The variation in the estimated percentage of eligible individuals participating in SNAP across states indicates that there could be unique state and local characteristics that influence participation rates.

The objective of this study is to identify explanatory characteristics of SNAP participation to determine if nutrition assistance programs can better reach eligible individuals who are not yet participating. We hypothesize that differences in SNAP usage rates among Oklahoma counties are based on differences in employment, level of county development, rurality, and household demographics. No published studies are available on SNAP participation in Oklahoma, leaving a gap for lawmakers and SNAP administrators in the state to understand the factors that may affect enrollment. Because SNAP affects the ability of low-income households to participate in food systems as consumers, this research would be valuable to food, agriculture, and community development researchers and practitioners.

Background

Oklahoma faces several socioeconomic challenges, such as high poverty rates, high employment in the

volatile oil and gas industry, and low educational attainment. These factors, among others, may affect participation in food assistance programs. Demographically, Oklahoma has a large Native American¹ population, which creates a unique policy and implementation environment. Other published analyses have included some characteristics relevant to SNAP participation in Oklahoma, but none include all potentially influential factors in a single analysis. We expect that factors such as the mining-dependent economy, the rural/urban divide in nutrition, and local demographics would affect SNAP participation in Oklahoma. We use food assistance program studies at the national, state, and local levels, and Oklahoma's particular characteristics, to inform this research.

Prior Food Assistance Research

The limited number of state and local studies of SNAP participation motivates the need to better understand what influences SNAP participation at a more granular level in order to get assistance to where it is needed. National studies do not allow for inferences to be drawn about individual regions and states but can form a baseline of what factors to consider in a local SNAP participation analysis. Since states are responsible for administering this federal program, taking this research a step further is necessary.

We have identified a few key studies that consider demographic, socioeconomic, and community factors that may influence supplemental nutrition assistance program participation nationally. Pinard et al. (2017) identify unemployment, poverty, the economy, outreach measures, cost of living, family structure, income, education, disability, race, eligibility, and other nutrition program participation as factors that influence an individual's participation in SNAP. Cohen (2019) finds older populations, noncitizens, and households with an employed member are least likely to participate in SNAP. Andrews and Smallwood (2012) suggest that changes in a person's need level, changes in

the business cycle, improved access to benefits expanded eligibility, and increased program benefit amounts influence SNAP participation. Additionally, rural SNAP eligible residents participate in SNAP at a rate of 86% versus 73% of eligible urban residents (Bailey, 2014). Bailey (2014) suggests this could be due to lower income and higher poverty in rural areas making rural residents more reliant on government assistance programs.

In addition to demographic, socioeconomic, and community factors, some studies also consider personal attributes or emotions that may influence participation. Juan et al. (2004) indicate that 45% of households not participating in supplemental nutrition assistance programs are food insecure. This is due to factors such as personal independence, cost of application or participation, stigma, low expected benefits, previous bad experiences, and lacking knowledge of how to apply (Juan et al., 2004). A study in Washington state looking at the low SNAP participation among the population over 60 years old identifies stigma and cultural behaviors, misinformation, transportation, and communication with SNAP offices by non-English or limited-English speaking elderly as barriers to participation among seniors (Gabor et al., 2002).

Economic Activity

Oklahoma ranked forty-third among the states for financial health and economic well-being in 2019, partially attributable to a higher percentage of workers in low-wage jobs and a poverty rate above the national average (Cullison, 2019). The 2019 median household income in Oklahoma was US\$52,919, compared to the national median income of US\$62,843 (U.S. Census Bureau, 2020b). The state's total real gross domestic product is US\$203,699 million, which was ranked twenty-seventh in the nation in 2019 (Bureau of Economic Analysis, 2020). All Oklahoma metro counties have experienced employment growth since 2007, but in most non-metro counties employment has decreased, as measured by the number of jobs in the

¹ Because the tribal nations in Oklahoma have origins in North America, this segment of the population is referred to as "Native American" for the purposes of this study. However, we recognize that the population data used could include citizens of other tribal nations as well. Alternatively, "Indigenous" and "First Peoples" could have been used, but we felt "Native American" most closely represents this Oklahoma demographic group.

county (Shideler, 2018). Oklahoma's unemployment rate is closely tied to energy markets, which may run counter to national employment trends. Employment can be highly variable, associated with the number of sites in development and production. During the period of this study, the oil and gas industry accounted for 6.5% of total employment in the state and 13.2% of household earnings (State Chamber of Oklahoma Research Foundation, 2016).

Demographics

Several rural Oklahoma counties experienced an increase in population between 1970 and 2010 due to an increase in energy jobs (Barker, 2012). However, those increases are not expected to be enough to offset a long-term trend of population decline in rural counties and a population increase in urban counties associated with the Tulsa and Oklahoma City metropolitan areas. Forty-one of Oklahoma's 77 counties experienced population decrease since 2010 (World Population Review, 2018). Counties with a declining population generally face restricted business development, which may affect employment opportunities and store access.

Some population demographics are unique to the state. Oklahoma is home to 38 tribal nations, which own millions of acres. Oklahoma has the second-largest Native American population in the U.S., with 523,360 citizens of tribal nations, representing 13.36% of the state population (World Population Review, 2021). The Native American population faces challenges with lower educational attainment, lower labor force participation, and higher poverty rates (Sarche & Spicer, 2008). Nationally, over 25% of the Native American and Alaskan Indian population live in poverty, and only 25% of this population participates in nutrition assistance programs (Native Farm Bill Coalition, 2017; Sarche & Spicer, 2008). These national figures support exploration of SNAP participation among Oklahoma Native American citizens, a historically underserved population, to ensure that those who wish to participate in the program have the resources needed to enroll.

Rurality

Analyses looking at food desert tracts are performed individually for urban and rural areas to allow for systematic differences between these areas (Dutko et al., 2012). Vacant housing, minority population, unemployment, low income, and region of the country were significant predictors of food desert status in rural areas (Dutko et al., 2012). This helps to explain how rural Oklahomans may have limited access to food and may impact their SNAP usage. Additionally, it motivates the need to control for rurality in other food systems research.

Oklahoma rural counties have a lower average household income and an aging population (U.S. Census Bureau, 2020). In the largely rural western half of the state, over 50% of the population has low store access and nine counties are considered food deserts.² In addition, jobs may be located far from unemployed individuals, making it difficult to meet SNAP's work-related requirements (Cohen, 2019; Gundersen, 2018). These factors illustrate some of the challenges faced by rural residents and could influence their decision to participate in a supplemental nutrition assistance program.

Access to Stores That Accept SNAP Benefits

Proximity to stores that accept SNAP benefits may influence program participation. Nineteen counties in Oklahoma have fewer than 10 SNAP-authorized stores (USDA ERS, 2020a). Tulsa and Oklahoma counties have 466 and 681 SNAP authorized stores, respectively, including grocery stores, convenience stores, supercenters, and specialized food stores. The percentages of SNAP recipients with low store access in their county range from 1.45% to 100%. In rural communities, the nutritional value of items that can be purchased with SNAP benefits may be lower than in urban communities because the only store in town may have a limited selection of nutritious foods. Lack of participation by those who qualify may also be due to limited program education and deficient transportation to access program benefits. The distribution and consumption of food eligible for purchase under the

² This study defines food deserts as counties where residents must drive 10 or more miles to the nearest grocery store or supermarket (Morton & Blanchard, 2007).

SNAP program may be an area for future food systems research.

Materials and Methods

Data

Data are available through the USDA ERS data on rurality (USDA ERS, 2019a), store access (USDA ERS, 2020a), and county typologies (USDA ERS, 2019b). The U.S. Census Bureau (2020a) American Community Survey five-year estimates include data on SNAP recipients and household demographics. Data are obtained from the Bureau of Economic Analysis (2020) on development (measured through GDP) and the Oklahoma Employment Security Commission (2021) on employment.

The most recent data sources, for 2015 and 2017, are used and represent a snapshot in time on SNAP participants in 2015. While more recent data is available on some characteristics, this was the window of time in which the most data overlap occurs. The variables represent employment, level of county development, location, and demographic measures, that we hypothesized influence SNAP usage rates. The variable representing “employment” is the unemployment rate. People are considered unemployed if they are available for work, but do not have a job and have actively looked for work in the past four weeks (U.S. Bureau of Labor Statistics 2015). County development is represented by GDP, a measure of the value of production in the county. The variable “store access” is the number of people in an urban county living more than one mile from a supermarket/large grocery store or the number of people in a rural county living more than 10 miles from a supermarket or large grocery store (USDA ERS, 2020a). Further data descriptions and summary statistics for the variables in the regression are shown in Table 1, except for the Rural-Urban Continuum Code statistics for Oklahoma, which are in Table 2.

The regression identifies explanatory characteristics using county-level SNAP participation as a percentage of the population below 125% of the poverty line as the dependent variable (*SNAPUsage*). This dependent variable measures the variability in actual enrollment among

those who are likely income-eligible for SNAP, primarily following a Program Access Index created for a study in New York City (Cohen, 2019; Lorts et al., 2019). Since not every SNAP-eligible individual participates, this dependent variable allows us to determine the factors that influence usage among those who are likely eligible.

Urban and rural communities are identified using the USDA ERS Rural-Urban Continuum Codes (RUCC). RUCC categories distinguish metropolitan counties by the population size of their metro area and nonmetropolitan counties by the degree of urbanization and closeness to a metro area (USDA ERS, 2019a). The continuum codes range from 1 to 9, where 1 is fully urban and 9 is fully rural. Table 2 describes the differences in codes.

Model Specification

The influence of county-level characteristics on SNAP usage (participation among those income-eligible) is measured through ordinary least squares regression analysis. The Breusch-Pagan/Cook-Weisberg test is used to test for heteroscedasticity. The null hypothesis is constant variance (homoscedasticity); the critical value is 0.07 (p -value is 0.7976) for the regression, thus failing to reject the null hypothesis. Model specification tests based on the Ramsey RESET test reveal no specification issues with Equation 1 (below). The F-stat is 1.19 and the p -value is 0.32, indicating that the functional form does not suffer from omitted variable bias. Variance inflation factors are used to check for multicollinearity. All VIFs are below 3, indicating that the model does not suffer from multicollinearity. OLS results are presented here to calculate the relationship between *SNAPUsage* and the twelve independent variables in Table 1. The final regression is shown in Equation 1:

$$\begin{aligned} \text{[Equation 1]} \quad \text{SNAPUsage}_c &= \alpha + \beta_1 \text{PovRate}_c + \\ &\beta_2 \text{StoreAccess}_c + \beta_3 \text{Age65}_c + \\ &\beta_4 \text{Dependents}_c + \beta_5 \text{Female}_c + \\ &\beta_6 \text{GDP}_c + \beta_7 \text{LowEd}_c + \\ &\beta_8 \text{NativeAmerican}_c + \beta_9 \text{UnempRate}_c \\ &+ \beta_{10} \text{MiningDependent}_c + \beta_{11} \text{Rural}_c \\ &+ \beta_{12} \text{PopLoss}_c + \varepsilon \\ C &\in \{77 \text{ Oklahoma Counties}\} \end{aligned}$$

Results and Discussion

The combination of independent variables captures 45.33% (35.08%) of the variability of SNAP usage in Oklahoma as measured by the unadjusted and

adjusted R^2 , respectively.³ Store access, households with children under 18, unemployment rate, and the rural dummy⁴ significantly affect SNAP usage. The percentage of Native American people has a

Table 1. Summary Statistics for SNAP Participation Rate Explanatory Characteristics (RUCC are in Table 2)

Variable	Variable Description (Year)	Type	Data Source	Mean (Std. Dev.)	(Min, Max)
SNAPUsage	Actual SNAP recipients as a percentage of the population below 125% of the federal poverty line (2015)	Percentage	U.S. Census Bureau American Community 5-year Survey	55.467 (12.508)	(24.888, 82.195)
PovRate	Poverty rate (2015)	Percentage	U.S. Census Bureau American Community 5-year Survey	17.053 (4.64)	(9.8, 29.9)
StoreAccess	Percentage of SNAP recipients with low access to any store (2015)	Percentage	USDA ERS	27.848 (19.154)	(1.45, 100)
Pop65	Percentage of population 65 or older (2010)	Percentage	U.S. Census Bureau American Community 5-year Survey	16.042 (2.727)	(10.24, 21.95)
Dependents	Percentage of households with children under 18 (2015)	Percentage	U.S. Census Bureau American Community 5-year Survey	29.194 (15.192)	(5.882, 147.82)
Female	Female percentage of the population (2015)	Percentage	U.S. Census Bureau American Community 5-year Survey	49.725 (2.031)	(39.983, 52.336)
GDP	GDP in 2015 in millions of dollars	Continuous	Bureau of Economic Analysis	2.409 (8.333)	(0.076, 54.586)
LowEd	County has 20 percent or more residents 25–64 with neither HS diploma nor GED from 2008–2012	Dummy	USDA ERS	.0519 (0.223)	(0, 1)
NativeAmerican ^a	Native American percentage of the population (2015)	Percentage	U.S. Census Bureau American Community 5-year Survey	10.148 (7.892)	(0.73, 42.01)
UnempRate	Unemployment rate (2015)	Percentage	Oklahoma Employment Security Commission	4.919 (1.457)	(2.3, 8.6)
MiningDependent	County has 13 percent or greater of average annual labor and proprietor earnings derived from mining, or 8 percent or greater of total employment in mining 2010–2012	Dummy	USDA ERS	0.299 (0.461)	(0, 1)
Rural	County has a RUCC of 7, 8, or 9	Dummy	USDA ERS	0.403 (0.494)	(0, 1)
PopLoss	County number of residents declined between 1990 and 2000 censuses and between 2000 and 2010 censuses	Dummy	USDA ERS	0.156 (0.365)	(0, 1)

^a Census data includes those individuals that selected “American Indian” or “Alaskan Native” on the Census. The OMB defines “American Indian or Alaska Native” as a “person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment” (Norris et al., 2012).

³ The R^2 is a goodness-of-fit measure for a linear model, representing how much of the variability in the dependent variable is explained by the independent variables. The unadjusted R^2 does not account for the number of variables in the model, while the adjusted R^2 does.

⁴ A “dummy” variable takes a value of 0 or 1 to indicate the absence or possession of a categorical factor. For example, a value of 1 for low education indicates the county had a 20% or greater share of residents aged 25–64 with neither a high-school diploma nor a general educational development (GED) certificate from 2008–2012, while a value of 0 indicates the county does not meet that same criterion.

marginally significant effect on SNAP usage rates. Table 3 illustrates all explanatory characteristics in the regression.

As the percentage of SNAP participants with low access to a store increases by 1 percentage point, SNAP usage decreases by 0.167 percentage points. As more people have low store access, the SNAP usage rate declines, indicating that increased store access may increase SNAP usage. Store

access is a logical participation determinant in a nutrition assistance program that requires shopping at a participating store. Individuals without store access may be more likely to participate in a program that provides physical goods or rely on organizations such as churches to deliver needed foods. Access could also be associated with a decrease in SNAP usage by 7.384 percentage points for rural counties, relative to suburban and urban

Table 2. Rural-Urban Continuum Code (RUCC) Descriptions

Rural-Urban Continuum Code ^a	Metro/Nonmetro	Description
1	Metro	Counties in metro areas of 1 million population or more
2	Metro	Counties in metro areas of 250,000–1 million population
3	Metro	Counties in metro areas of less than 250,000 population
4	Nonmetro	Urban population of 20,000 or more, adjacent to a metro area
5	Nonmetro	Urban population of 20,000 or more, not adjacent to a metro area
6	Nonmetro	Urban population of 2,500–19,999, adjacent to a metro area
7	Nonmetro	Urban population of 2,500–19,999, not adjacent to a metro area
8	Nonmetro	Completely rural or less than 2,500 urban population, adjacent to a metro area
9	Nonmetro	Completely rural or less than 2,500 urban population, not adjacent to a metro area

^a For this study, codes 1 to 3 were combined as “urban,” codes 4 to 6 were combined as “mixed urban/rural,” and codes 7 to 9 were combined as “rural.”

Table 3. Results of the Relationship Between Oklahoma SNAP Usage (SNAPUsage) and Explanatory Characteristics (N=77)

Variable	Coef. ^a	Std. Err.	t	P> t	95% Confidence Interval
PovRate	0.475	0.425	1.12	0.268	(-0.375, 1.324)
StoreAccess	-0.167	0.070	-2.37	0.021	(-0.307, -0.026)
Age65	0.156	0.553	0.28	0.779	(-0.949, 1.261)
Dependents	0.181	0.082	2.21	0.031	(0.018, 0.345)
Female	-0.219	0.614	-0.36	0.723	(-1.446, 1.008)
GDP ^b	-0.036	0.158	-0.23	0.819	(-0.352, 0.279)
LowEd	-2.848	6.141	-0.46	0.644	(-15.116, 9.421)
NativeAmerican	-0.362	0.233	-1.56	0.125	(-0.827, 0.103)
Unemp_Rate	3.500	1.353	2.59	0.012	(0.798, 6.202)
MiningDependent	-2.608	2.899	-0.90	0.372	(-8.400, 3.184)
Rural	-7.384	2.796	-2.64	0.010	(-12.970, -1.798)
PopLoss	0.435	4.452	0.10	0.923	(-8.459, 9.328)
Constant	45.479	31.852	1.43	0.158	(-18.152, 109.110)

Source: OLS regression results.

^a Variables that have a significant coefficient at the 10% significant level or better are bold.

counties. There could be several explanations for this result. First, while urban residents may be more aware of where they can use SNAP benefits if they were to apply for the program, rural residents may not realize it is an option in their area if their county does not have a major grocery retailer. Although food options may be limited in rural areas, many convenience stores, specialized food stores, and small grocers are SNAP retailers in Oklahoma. Second, this result may be related to Gundersen's (2018) observation of the role social stigma plays in participation, particularly since Oklahoma rural areas are highly conservative.

The percentage of the population that is Native American is, at most, marginally significant; however, given the importance of this population in the Oklahoma economy, the results will be presented more fully. As the percentage of the population identifying as Native American increases by 1 percentage point, SNAP usage decreases by 0.362 percentage points. As the Native American population generally has a high poverty rate, many Native American people are income-eligible for SNAP. While the exact reason for usage decrease is unclear, there may be several possible explanations. First, the existence of additional tribal or state programs serving those groups, including alternative programs such as the Food Distribution Program on Indian Reservations (USDA Food and Nutrition Service, 2018), may affect the usage of SNAP. Second, there may be effects from stigma associated with government programs, such as reliance on government funds and capability of purchasing foods (Gunderson, 2018). Due to the large Native American population in the state, dedicating resources to better understand SNAP usage by this segment of the population would be a valuable extension of this work.

A 1 percentage point increase in the unemployment rate increases SNAP usage by 3.5 percentage points. This could be due to individuals seeking temporary assistance during periods of unemployment. As industries like oil and gas are prominent in the state, there may be a greater need for temporary supplemental assistance than in regions dominated by industries with more consistent employment.

A 0.181 percentage point increase in SNAP

participation rate occurs when the number of households with children under 18 increases by 1 percentage point. Households with children are more likely to participate in food assistance programs (Pinard et al., 2017). As the number of children within a household increases, the likelihood of experiencing chronic poverty and participating in SNAP both increase (Pinard et al., 2017). SNAP benefits increase with the size of a household, so the program may seem more attractive to households that will receive greater benefits. The population over 65 was not a significant user of SNAP; this is not unexpected, as previous literature indicates that aging populations may utilize other sources of food aid such as food pantries (Robinson, 2017) and may not utilize SNAP as extensively (Geiger et al., 2014).

Conclusions

Oklahoma consistently faces food insecurity challenges due to factors such as average household incomes that are lower than the national average, large numbers of workers in lower-wage jobs, large rural areas, a mining-dependent economy, and above-average poverty rates. SNAP can play a role in reducing food insecurity in the state. As of 2019, Oklahoma SNAP usage (the percentage of SNAP eligible individuals who participate out of those who are likely income-eligible) is 84% (Center on Budget and Policy Priorities, 2020). However, little analysis is available on these local and regional SNAP participants, and none that is specific to Oklahoma. This study provides a first attempt at identifying factors affecting SNAP usage among income-eligible Oklahoma households. The results identify areas that may contribute to the remaining 16% gap in Oklahoma SNAP usage. This analysis can help policymakers, SNAP administrators, and partner education institutions better understand SNAP participation, which can enhance outreach to groups that are eligible and could benefit from the program but are not yet participating.

The unemployment rate and the number of households with children under 18 are positively associated with SNAP usage in Oklahoma. It is logical that the demand for supplemental nutrition assistance increases with the percentage of the workforce unemployed and with the number of

households who have children. Store access, the percentage of the population that is Native American (marginally), and rurality are associated with lower SNAP usage. Further analysis is needed to better understand the reasons behind these results. Limited store access may indicate a barrier to participation. However, this result may also indicate an opportunity for education on how to use SNAP benefits and where they are accepted, such as by helping SNAP users learn that places like gas stations and convenience stores often accept SNAP benefits. Further analysis will be needed to identify why decreases in SNAP usage were found among rural counties and in Native American populations. The effects of limited store access and of rurality on SNAP usage may be related, particularly as small-town populations and small-town grocery store numbers decline. However, reduced SNAP usage in rural counties may also be associated with a reluctance to participate, due to factors such as perceived social stigma from participating. That the Native American population has lower SNAP usage rates may have several explanations, including fewer outreach programs designed for this underserved population and alternative nutrition assistance programs available to this community.

The results from this analysis suggest expanding education opportunities to target audiences, and the need to better understand the effectiveness of outreach efforts. For example, Oklahoma State University Extension's popular co-parenting classes could have literature available on eligibility and enrollment in SNAP for households with children under 18 and parents who may be working part-time to assist with childcare. Partnerships with city chambers of commerce and county government programs, especially in rural counties, can be used to distribute additional information on how stores can become authorized to accept SNAP benefits, to better advertise stores which accept SNAP benefits, and to connect with state food-pantry programs to start local outreach where needed. These results indicate that increasing store access may be the most manageable way to increase SNAP usage. More broadly, this analysis could enhance agricultural and regional economists' focus on nutrition assistance based on characteristics

specific to their regions, tying more closely to associated research in regional and community development, food systems, health, and consumption spending. State lawmakers exploring economic development may find these results helpful as they consider programs to encourage small business growth, job opportunities, and improving the well-being of their constituents.

SNAP does not represent the only nutrition assistance available in Oklahoma, so analyzing it in isolation may not reflect the combined programs or resources used by at-risk households. Future research could consider other supplemental nutrition assistance programs available in the state, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Food Distribution Program on Indian Reservations (FDPIR), and the several programs that support the nutrition of school-aged children (Oklahoma State Department of Education, n.d.). Participation in these alternative programs could influence SNAP participation (Pinard et al., 2017).

This analysis forms a starting point that could serve as a baseline for comparison to future research during an economic downturn as data becomes available. For example, the concurrence of economic challenges associated with the COVID-19 pandemic in 2020–2021 and low oil prices in 2019–2020 creates an ideal opportunity to see how Oklahoma SNAP usage changes in economically difficult times. In addition, there may be an opportunity to work with Oklahoma's tribal nations on further studies of nutrition assistance targeted to these groups.

This analysis of SNAP usage in Oklahoma supports a need for research on SNAP participation at the local and regional levels. Other states can replicate this project with their unique factors that may impact SNAP participation, just as this study built from a study in New York City. Factors such as poverty rate, education, and race may influence SNAP participation nationally, but gaining insights into the specific factors at a more granular level may have benefit for increasing SNAP participation and reducing hunger in individual communities.



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“The highest and best use of land in the city”: Valuing urban agriculture in Philadelphia and Chicago

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Abstract

United States cities have developed urban agriculture support systems with different priorities and institutional structures, with significant impacts and implications for social equity and justice. Some treat farming and gardening as public goods, public spaces, valued for their community-building, environmental and public health promotion, and other social benefits. Others have sought to extract more economic and redevelopment gains from urban agriculture. These represent divergent, often opposing expectations of what urban agriculture can yield, and what it should be, often present in the same city. This article, a combination of mixed

methods research and reflection, traces the evolution of urban agriculture practice, support, and policy in Philadelphia and Chicago since the 1990s. In both cities, community gardens first declined and then grew in number since the late 2000s; both cities became prominent centers of urban farming. The two cities’ policies and support systems started from a similar place in the 1990s, but Chicago increasingly treated urban agriculture a public good, while the place of agriculture in Philadelphia remained more contested and unstable. These histories reflect broader tensions and the diversity of approaches in governing, supporting, and practicing agriculture in cities.

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Keywords

Community Gardens, Urban Farms, City Policy, Governance, Urban Agriculture Support Systems, Chicago, Philadelphia, Public Good, Community Development, Economic Development

Introduction

“Community gardens are the highest and best use of land in the city,” says Ben Helphand, director of NeighborSpace, Chicago’s land trust for community gardens (B. Helphand, personal communication, Oct. 15, 2016). In the logic of real estate economics and urban redevelopment, he is wrong. But for cities that prioritize other values and impacts, there indeed may be no higher and better land use than urban agriculture. Arguably, no other urban land use enables people of all ages and backgrounds to reap such a broad range of social, health, educational, and other benefits (Draper & Freedman, 2010; Lovell, 2010). For these and other reasons, some cities treat agriculture as a public good, as permanent public space accessible to all.

Yet many municipalities, and some urban agriculture support organizations, value farming and community gardening more for their contributions to redevelopment, with narrower, shorter-term aims. Many cities are reluctant to grant long-term land tenure, viewing agriculture as an interim use waiting for “higher and better” land uses that generate tax revenue, jobs, and private investment. Some cities organize their agricultural sectors centrally around access to vacant land, pitting growers against developers. Some cities prioritize economic and redevelopment outcomes from farms and gardens, including enterprise growth, land reclamation, and property value increases (Pothukuchi, 2018; Vitiello & Wolf-Powers, 2014).

Most big cities take a mixed approach to community gardens and farms. Actors place different emphases—sometimes in tension with one another—on the value of the various demonstrated and potential impacts of urban agriculture noted above. Parks, health agencies, and other enactors of social and environmental policy commonly treat urban agriculture as a public good, prioritizing non-market benefits. Economic development and redevelopment agencies more often view it as an interim use and an enterprise development oppor-

tunity. Planning departments vary in embracing these visions and values (Hodgson et al., 2011; Vitiello & Wolf-Powers, 2014). The relative influence of these agencies over urban agriculture in a city holds critical implications for the extent to which gardening and farming are promoted to these diverse ends.

Urban agriculture support systems likewise differ substantially, including in the ways they mediate land access and tenure. Some urban agriculture support functions are based more in the public sector, others more in the nonprofit sector. The institutions supporting community gardens and farms in cities vary in their missions, scope of work, and the durability and funding streams of municipal and nonprofit programs (Lawson, 2005; Lawson & McNally, 1999; Vitiello & Nairn, 2009). Municipalities and civil society also manage land access and tenure for urban agriculture in distinct ways, some more transparent and navigable to the public than others. Access and tenure are determining factors in how much a city’s agriculture system operates as a public good, and how much it promotes equity and justice in people’s control over land and food production (Drake & Lawson, 2014; Ela, 2016; Ela & Rosenberg, 2017; Lawson, 2005; Pothukuchi, 2017, 2018).

Compounding this variation, the very definition of urban agriculture is ambiguous in the U.S. Some use the term to mean strictly farming food and other products for sale. Others, including most scholars of urban agriculture, include a wide range of market and non-market production, processing, and distribution in their definitions of urban agriculture. In this latter view, community and home gardens are the largest forms of urban agriculture, involving more people and producing more food than sites that are generally called urban farms (Taylor & Lovell, 2014; Vitiello & Nairn, 2009). People most familiar with urban agriculture practice also recognize that most urban farms engage not only in commercial activity; many are nonprofit organizations, and some do not sell any of their harvest (Dimitri et al., 2016; Hodgson et al., 2011; Kaufman & Bailkey, 2000; Siegner et al., 2020; Vitiello & Wolf-Powers, 2014). Appreciating the overlaps and relationships between urban farming and gardening is arguably more important, and

more realistic, than attempting to distinguish them from one another.

This paper explores how urban agriculture has been valued, governed, and supported in two cities, Philadelphia and Chicago, featured in the groundbreaking study *Farming Inside Cities* by Jerome (Jerry) Kaufman and Martin Bailkey (2000). Originally written for a symposium in Jerry's honor, it asks: How have cities organized their urban agriculture support systems, including land access and tenure? What values and aims have city leaders ascribed to urban farms and community gardens? What do different paradigms of policy and support mean for urban agriculture's position as a land use, and for gardeners and farmers? This paper explores these questions by reflecting on the evolution of the urban agriculture sectors and support systems of Philadelphia and Chicago since the end of the 1990s.

I first review literature on divergent visions, values, and approaches to urban agriculture since *Farming Inside Cities*, and then briefly discusses research methods. The subsequent sections on Philadelphia and Chicago reflect on what Kaufman and Bailkey found when they visited in 1998–1999 and how the two cities' landscapes of farms and community gardens, support systems, and policies subsequently evolved. While their urban agriculture sectors and support systems closely resembled one another in the late 1990s, Chicago increasingly has treated urban agriculture as a public good, but in Philadelphia its purpose and place in the city remained more contested and unstable.

This analysis is based on quantitative and qualitative research as well as work with growers, policymakers, support organizations, and advocates I have conducted with colleagues in the two cities since the mid-2000s (Vitiello, 2008; Vitiello & Nairn, 2009; Vitiello & Wolf-Powers, 2014). This mix of research and practice makes this paper a combination of research study and reflective essay. It contributes to a growing literature on the purposes, meanings, and governance of urban agriculture (Cohen & Reynolds, 2014; Daftary-Steel et al., 2015; Horst et al., 2017; McClintock, 2014; McClintock & Simpson, 2018; Pothukuchi, 2015, 2017, 2018; Siegner et al., 2020; Ventura & Bailkey, 2017; Vitiello & Wolf-Powers, 2014). Comparing

different cities can help scholars, practitioners, and advocates assess how equitable our urban agriculture systems and sectors are, and take stock of recent policy and practice in order to prioritize what we most value moving forward.

Literature Review: Visions and Values of Farming and Gardening

In *Farming Inside Cities*, Kaufman and Bailkey (2000), highlighted the entanglement of, and tensions between, different visions, values, aims, and expectations of urban agriculture in U.S. cities. In the years since, their colleagues, students, and other scholars have produced a substantial literature grappling with these tensions. A central question in this literature concerns the extent to which urban agriculture can or should be a viable private market activity, a public good, or a redevelopment strategy.

Farming Inside Cities was a study of “entrepreneurial urban agriculture.” Contrary to definitions of entrepreneurship as a private market pursuit, Kaufman and Bailkey showed that entrepreneurial urban agriculture was embedded mostly in the non-profit sector. Only a few of the seventy farms they found were turning a profit; some had closed and others were still in the planning stages. As a result, they argued economic valuations were not all that mattered: urban farms provided “a variety of other social, aesthetic, health, and community-building and empowerment benefits” (Kaufman & Bailkey, 2000, p. 84).

Kaufman and Bailkey recognized the incongruous fit between even the most profit-driven urban farming at the time and the value systems of redevelopment professionals. One of the greatest obstacles, they concluded, was the “sobering reality” that agriculture “is not seen as the ‘highest and best use’ of vacant inner city land by most local government policy officials who would like to attract ‘better’ tax paying uses on this land” (2000, p. 84). Kaufman and Bailkey cast entrepreneurial agriculture as a worthwhile addition to cities' redevelopment strategies for its numerous potential benefits to residents of disinvested neighborhoods, from stipends for youth growers to fresh food access (2000, p. 85).

Lawson and her colleagues have further exposed the rifts in values and goals between dif-

ferent interests and actors in community gardening, farming, and redevelopment of vacant land. Lawson (2005) points to the long history of city governments, elite-led nonprofits, and philanthropists supporting urban agriculture largely in times of crisis, while their commitments have waned at other times. Meanwhile, marginalized communities, and especially migrant communities from rural origins, domestic and global, have engaged in urban gardening and farming more continuously, where and when they can. Lawson acknowledges community garden impermanence and the “precarious nature of semi-public space” (2009). She and her colleagues emphasize land tenure, enduring support systems, and ongoing attention to participation as critical to garden longevity (Drake & Lawson, 2014, 2015; Ho et al., 2009; Lawson, 2005, 2007, 2009; Lawson & Drake, 2015; Lawson & Miller, 2013).

In a study of Seattle, Hou et al. (2009) make an explicit case for community gardens as a public good, “as public open space.” With the P-Patch support program coordinating garden access and support in the city’s Department of Neighborhoods, and the Parks Department and nonprofit P-Patch Trust holding land, Seattle is arguably the leading example in the U.S. of urban agriculture as public space. Community gardens may not be locked, have signage in many languages, and are located around the city, with some of the largest in working-class neighborhoods (Lawson, 2005). Other scholars and practitioners also recognize P-Patch as one of the nation’s strongest, most equitable systems (American Planning Association, 2007; Hodgson et al., 2011; Horst et al., 2017; Vitiello & Brinkley, 2014).

By contrast, Pothukuchi’s studies (2015, 2017, 2018) of Detroit and Cleveland present a powerful critique of the “redevelopment model” of urban agriculture. She illuminates how even in cities where vacant land abounds as population loss continues in the twenty-first century, politicians, city agencies, and redevelopment scholars discourage granting long-term tenure to agriculture; their “growth paradigm” (Pothukuchi, 2018, p. 658) strives to value it as more than an interim use. For the city to “foster an enduring urban agriculture sought by advocates,” she concludes, “the value of

both urban land as well as agriculture will need to be reimagined” (Pothukuchi, 2018, p. 672). More “conventional notions of highest and best use of land may need to be replaced ... with more durable support” (Pothukuchi, 2018, p. 672) that treats urban agriculture as a long-term, low-profit land use, appreciated and protected for the “community value it creates” (Pothukuchi, 2018, p. 672).

Related research by myself and others highlights the limits, and successes, of urban agriculture as economic development. Our findings contest the expectation that most urban farming can satisfy outcomes traditionally sought by economic development agencies, such as profitable firms, stable jobs, and enhanced tax revenue. Instead, we echo Kaufman and Bailkey in arguing for an appreciation of urban agriculture’s contributions to supplemental income, education and workforce integration, social enterprises, jobs in nonprofits, and contributions to household food budgets and networks of social support (Vitiello & Wolf-Powers, 2014; also Biewener, 2016; Daftary-Steel et al., 2015; Dimitri et al., 2016; Ventura and Bailkey, 2017). The ambiguous lines between gardening and farming only make this more important.

Indeed, a clear dichotomy between urban agriculture as a public good or as a mechanism for economic or property development is clearly false. McClintock argues that “urban agriculture *has to be* both... a form of actually existing neo-liberalism *and* a simultaneous radical counter-movement arising in dialectical tension” (2014, p. 148), if it is to realize its potential to support social and ecological change. The variety of urban farming and gardening social enterprises of recent decades, for McClintock, are part of “urban agriculture’s entanglement in various processes of neoliberalisation” (2014, p. 149), the shift to market models of governance and reliance on private actors to produce social benefits. Most notable among these entanglements is the “roll-out of non-profits to fill in the gaps left by the rolling back of the social safety net, and the promulgation of neoliberal discourses of personal responsibility and market-based solutions” (2014, pp. 148–149).

Similarly, community gardens’ relationships with neighborhood change hold mixed implica-

tions for disadvantaged communities. Community gardens typically are the most public and often the most equitable form of urban agriculture, places where people experiencing poverty stabilize their neighborhoods and lives. More ambiguously, gardeners help create the conditions that support gentrification and, sometimes, displacement: improvements to land and property values, neighborhood beautification, increased safety. Some real estate developers employ community gardens to beautify and attract interest in properties before construction. More and less public and equitable forms of community gardening thus impact—and are deployed variously within—the larger processes of neighborhood change (Branas et al., 2012; Lawson, 2005, 2007; Martinez, 2010; Rubin & Guo, 2012; South et al., 2018; Vitiello & Nairn, 2009).

The uneven approaches of city governments and nonprofit urban agriculture support organizations both reflect and reproduce these tensions and variable outcomes. Assessing the effectiveness, equity, and sustainability of urban agriculture support systems is an important part of food system planning and community development (Bleasdale et al., 2011). In many cities a large swath of the public participates in community gardens and farms, yet only some cities have substantial public sector involvement in urban agriculture (Drake & Lawson, 2015; Lawson, 2005), as well as strong citywide support systems, including community land trusts that help acquire, own, pay insurance, and sometimes manage gardens and farms. And only some of these land trusts hold a large, well-distributed, accessible, and stable landscape of community gardens or farms (Choo, 2011; Drake & Lawson, 2015; Hou et al., 2009; Lawson, 2005; Rosenberg & Yuen, 2012). In most cities, urban agriculture is to some extent contested, by neighbors, public authorities, private developers, and growers (Hodgson et al., 2011). In too many cities, urban agriculture and the policies and institutions that support it are celebrated uncritically, without perspective on other cities' systems. And in some cities, including Philadelphia and Chicago, urban agriculture policies, support systems, and landscapes of gardens and farms have changed considerably in recent decades.

Methods

This article draws on a mix of quantitative and qualitative research, as well as my experiences working with gardeners, farmers, policymakers, urban agriculture support organizations, and advocates in Philadelphia and Chicago. Data includes citywide censuses documenting all community gardens and farms in the two cities, conducted in Philadelphia in 2008 and updated in 2012 and 2015, and in Chicago in 2012–2014. These studies documented the locations, conditions, ownership, and food production at each garden and farm site. During these and subsequent years, we interviewed over 200 gardeners and farmers. We asked about the histories, organization, and social life of their gardens and farms, and what people did with their harvest (Borowiak et al., 2018; Safri et al., 2018; Vitiello & Nairn, 2009). In this and separate research on urban farming and economic development, colleagues and I have also interviewed staff at nonprofit support programs and city agencies (Vitiello & Wolf-Powers, 2014). Finally, I have participated in and sometimes led policy advocacy, program development, and evaluation research with urban agriculture organizations as well as city agencies in Chicago and especially Philadelphia.

Reflecting on what colleagues and I researched and experienced over the last two decades has offered an opportunity to compare urban agriculture practice and support systems in the two cities. *Farming Inside Cities* provided a baseline assessment of farming and garden support systems in the late 1990s as well as critical reflections on a set of questions that inspired much of my own work. Jerry Kaufman and Martin Bailkey were important mentors to me; we visited urban farms and community gardens together in Chicago and Philadelphia in the summer and fall of 2008.

Findings

Chicago and Philadelphia are among the United States' most vibrant centers of urban agriculture, with substantial histories of community gardening and farming, histories that largely paralleled one another through the end of the twentieth century. However, in the twenty-first century, their municipal governments and urban agriculture support organizations embraced distinct visions for farming

and gardening, reflecting different values. This resulted in divergent governance and support systems, with critical implications for the management, stability, and equity of their urban agriculture sectors.

Philadelphia

Vacant land and social crisis are central to the history of urban agriculture in Philadelphia. As in Chicago, Detroit, and New York, most histories of urban agriculture in the city begin with the Vacant Lot Cultivation Association formed during the Depression of 1893–1897, which gave people more access to undeveloped land. Government gardening programs during the World Wars and Great Depression scaled up food production in these and other cities again in subsequent decades, on vacant land, parks, and cemeteries, though always temporarily (Lawson, 2005). Just one Victory Garden from World War Two survives in Philadelphia (Vitiello & Nairn, 2009).

In 1954, elite women from the suburbs formed the Neighborhood Gardens Association, bringing horticulture programs to working-class blocks, reflecting what Lawson (2005) has characterized as Philadelphia's particularly paternalistic culture of community gardening. In the mid-1970s, Penn State County Extension became one of the first sites of the USDA Urban Gardens Program and the elite Pennsylvania Horticultural Society (PHS) established the Philadelphia Green Program. These programs helped diverse Philadelphians, especially working-class African American, Puerto Rican, and Southeast Asian migrants, establish hundreds of gardens on vacant land around the city. In the 1980s, the two organizations established the Neighborhood Gardens Association land trust (NGA, distinct from the earlier group), to preserve some of these gardens (Lawson, 2005; Vitiello & Nairn, 2009).

As Philadelphians elected a new mayor, John Street, in 1999, Kaufman and Bailkey (2000) wrote, “city government presently plays no explicit role in the support of urban agriculture”; rather, community gardens and farms had “a large and somewhat diffuse supporting infrastructure ... outside of municipal government” (p. 44). The biggest part of the Philadelphia urban agriculture sector remained

its nonprofit community garden support system. Penn State was still one of the “two major urban agriculture actors” in 1999, “providing technical assistance and educational support to over 500 community gardens” (pp. 41–42). In this program, “for-market production has not been emphasized or supported, primarily because its constituents are older and not interested” (p. 42).

However, PHS, which supported most of these gardens and many other spaces around the city, was exploring commercial urban farming as part of a larger vacant land greening and management strategy. This was a priority for policymakers in a city of some 40,000 vacant lots (Pennsylvania Horticultural Society, 1995; Philadelphia City Planning Commission, 1995). PHS held a conference and commissioned a report on urban farming but did not start new programs for farms at the time, largely due to farming's limited economic prospects (Philadelphia Green, 2000).

Yet, in 1998 and 1999 Bailkey and Kaufman found that farming was expanding in Philadelphia, with “entrepreneurial agriculture” representing a mix of for-profit and nonprofit growers and diverse business models. Greensgrow Farm, a “privately owned, hydroponic vegetable producer” (p. 35) started in 1997, had increased its seasonal workforce from three to five with Welfare-to-Work subsidies. For-profit Philaberry Farms had grown raspberries and blackberries for groceries and restaurants for seven years on a vacant lot, a speculative real estate holding strategy “until the time is right for residential development” (p. 38). Philly Farms Mushrooms, a joint venture of larger investors and the Kaolin mushroom company, was still in the planning stages. More farms and production gardens were tied to nonprofits, including a garden at University City High School supported by the University of Pennsylvania's Urban Nutrition Initiative. The nonprofit Village of Arts and Humanities had recently planted a tree farm, and nearby Sea Change, Inc. provided jobs and training for formerly houseless people at its tree farm, CSA, and café. Sea Change, however, was on “the brink of bankruptcy” due to “difficulties of fundraising, the marginal revenues produced by the CSA and Cyber Café, and the inability to resolve issues of future land access” (p. 38; see also Vitiello, 2008).

As the experience of SeaChange suggested, land disposition in the city remained a barrier. Kaufman and Bailkey (2000) explained, “despite the positive awareness of city farming in Philadelphia, acquiring the land needed to implement it is, in practice, difficult due to bureaucratic complexity and the way in which city agencies managing vacant land guard their own interests” (p. 45). City council members and municipal agencies’ reluctance to transfer land seemed counter to “the stated concerns of city government for the social and economic consequences of blighted properties in central Philadelphia neighborhoods”; they hoped that Street, the new mayor, with his “commitment to a focused policy addressing neighborhood blight, may anticipate greater opportunities for entrepreneurial urban agriculture” (p. 45), including the same strategy for managing vacant land that PHS advocated.

For the most part, the Street administration proved hostile-to-uninterested in urban agriculture, but people established new farms in the 2000s even as most of those profiled in *Farming Inside Cities* closed. Greensgrow survived, thanks to its CSA sourcing from the region, its nursery, and grants for its community kitchen and education programs. Philaberry, Sea Change, and Philly Farms Mushrooms (which never got into production) all folded by the early 2000s. The Village abandoned its tree farm, and the University City High School garden was bulldozed. By 2008, new farms included Weavers Way Coop’s market gardens and orchards at Awbury Arboretum, MLK High School, and its new CSA at Saul Agricultural High School, a public vocational school. Private Flat Rock Farm sold much of its harvest to the cafeteria of a nearby private school. Mill Creek Farm, an educational nonprofit, grew out of a stormwater management project supported by the Water Department, as did Somerton Tanks Farm, a demonstration farm promoting the economic viability of the Small Plot Intensive (SPIN) Farming growing method (Vitiello, 2008). By 2010, Philadelphia had about 20 farms.

Bigger changes happened in community gardening, as the city’s robust garden support system declined. In 1996, Congress de-funded the Urban Gardens Program, devastating city extension

offices around the country. Philadelphia County Extension kept its program going until 2000. Community gardening programs at PHS also lost their main sources of philanthropic funding and shrank dramatically (Lawson, 2005; Vitiello & Nairn, 2009). In 2008, my colleagues and I visited over 700 sites in the city where Penn State and PHS had supported community gardens, as they had lost track of which gardens remained active. City Harvest, the new name for urban agriculture programs at PHS, supported just 37 sites that year. We found 227 community gardens growing food, down from 501 in 1996, when Penn State had last documented them (Vitiello & Nairn, 2009). Philadelphia lost more than half its food-producing community gardens in just twelve years.

Interviews with current and former gardeners, neighbors, and city and nonprofit staff suggest three principal reasons for this decline. First, as Kaufman and Bailkey identified a decade earlier, gardeners were aging and passing away. Second, the decline of garden support programs meant many older gardeners who depended on support ceased gardening. Public and nonprofit systems for accessing a plot in a community garden were fragmented, unclear, and often informal, which meant that many older gardeners were not replaced. We heard more than once, “to get a plot, you have to know someone who knows someone.” Staff at the Redevelopment Authority even lost the institutional memory that the agency had been tasked with administering annual agreements with gardeners on scores of city-owned lots (Vitiello & Nairn, 2009).

The third reason, compounding the first two, was Mayor Street’s signature project, the Neighborhood Transformation Initiative (NTI). Launched in 2000, it sought to demolish vacant buildings, “clean and green” vacant lots, and assemble land for development. PHS scaled up its vacant land management, but not with farms and gardens. Rather, PHS and its partners planted and mowed grass ringed by trees and wood fences on thousands of properties. This stabilized many lots, and subsequent research found that cleaned and greened lots had significant effects on safety and health (Branas et al., 2012; South et al., 2018). But cleaning and greening also destroyed community

gardens, especially on city-owned and tax-delinquent lots in North Philadelphia.

We encountered about a dozen people on different blocks who told us, essentially, that, “a man came from the city one day, said we couldn’t garden here anymore,” and soon after, “a bulldozer came and cleared the garden.” Most of these sites, where typically smaller gardens were displaced in the early and mid-2000s, remained vacant in 2008. Displacing gardeners, we observed, “was made easier by the fact that most community gardens are listed on city property databases ... as ‘vacant land’” (Vitiello & Nairn, 2009, p. 37). Notwithstanding the benefits of vacant land management, these gardens and their gardeners impacted health and safety in similar ways. They had taken care of land, gotten people outdoors, and grew relationships and trust, arguably in more impactful ways than fencing and mowing the same lots.

These changes helped produce clearly inequitable patterns and trends. Most of the gardens that disappeared between 1996 and 2008 were in poorer sections of North, West, and South Philadelphia, rowhouse neighborhoods where the African American, Puerto Rican, and Southeast Asian populations were aging. Most of these neighborhoods would gentrify in the subsequent decade, as developers built on these and other gardens that lacked protection from displacement. The NGA land trust owned 26 gardens in 2008, most in already gentrified areas where affluent white gardeners had purchased the land and transferred it to NGA. This “helped reinforce the pattern of gardens in low-wealth neighborhoods disappearing while those in middle class neighborhoods more often survived” (Vitiello & Nairn, 2009, p. 37).

Still, the longevity of hundreds of gardens in the city represented an important finding. Scores of community gardens had persisted for two or three decades or more: “our findings ... contradict one major assumption made by many city agencies and philanthropists, namely that community gardens are simply a ‘temporary land use’” (Vitiello & Nairn, 2009, p. 43). But casting urban agriculture as an interim use was increasingly a winning strategy with politicians and redevelopment professionals. PHS responded to the limits and opportunities of city and philanthropic funding under Mayor Street

and his successor Michael Nutter with new rationales for agriculture. Since the 1970s, PHS had presented its community gardening programs as bringing together residents of blighted neighborhoods to “take back” and beautify *their* neighborhoods. But by the late 2000s, PHS came to promote City Harvest largely as a program for community gardens to donate produce to food cupboards (Meenar & Hoover, 2012; Vitiello & Nairn, 2009) and emphasize City Harvest’s contributions to property values and redevelopment. Economists’ finding that vacant land management, gardens, and other greening helped raise adjacent property values supported this new narrative (Voicu & Been, 2006; Wachter & Wong, 2008).

This new emphasis reflected two interrelated paradigm shifts in the values underlying U.S. urban agriculture. First, repeating the long-term trend of viewing urban farming as a temporary response to crises, national media, philanthropy, governments, and others increasingly promoted it as a solution to food insecurity (DeLind 2014). Second, as Philadelphia, Chicago, and other cities experienced revitalization and rising interest in green jobs, a variety of urban and economic development interests touted its potential real estate and economic development payoffs, a vision promoted also by SPIN farming and other advocates (Hunold et al., 2017; Institute for Innovations in Local Farming, 2007; Vitiello & Nairn, 2009).

Like its predecessor, the Nutter administration lacked a coordinated strategy for urban agriculture, perpetuating contestation over where and what it should be. In 2008, advocates convinced Nutter’s first sustainability director to establish a Food Policy Advisory Council (FPAC). In 2009, however, heads of the Redevelopment Authority and the Department of Parks and Recreation argued over which agency should control urban agriculture, and whether to treat it as an interim use, a stance promoted by Nutter’s redevelopment director and his director of planning and economic development. In 2010, the Redevelopment Authority and Parks and Recreation failed in respective attempts to locate market gardens on their properties, the former since it offered only short-term leases and the latter since it threatened a longtime agricultural use, the hayfield of Saul Agricultural High School

(Hodgson et al., 2011; Vitiello & Wolf-Powers, 2014). Neither department pursued a major commercial farming project again. But in 2014 Parks and Recreation established the FarmPhilly program, supporting new and existing community gardens and farms at recreation centers and parks.

In the 2010s, gardeners and advocates turned increasing attention to the preservation of community gardens, as private development took off in many neighborhoods. The NGA land trust had never been the center of PHS or Penn State’s garden support systems. In the late 2000s, PHS leaders decided to shut down NGA before PHS’s new president Drew Becher, who came from Bette Midler’s land trust for gardens in Manhattan, reversed this decision. PHS took control of NGA and renamed it the Neighborhood Gardens Trust (NGT). Under Becher, however, PHS invested more in pop-up beer gardens than in NGT (Hodgson et al., 2011).

In 2011 attorney Amy Laura Cahn started the Garden Justice Legal Initiative (GJLI) at the Public Interest Law Center of Philadelphia. Much like 596 Acres in New York, GJLI helped individual community gardens and farmers gain ownership and resist displacement, while at the same time pursuing policy advocacy in City Council and the FPAC (Public Interest Law Center of Philadelphia, 2013). GJLI incubated Soil Generation, a coalition of growers and advocates led by Black and Brown people. The first true organized group of grassroots advocates for agriculture in the city, Soil Generation’s campaigns focused on threatened gardens, fought city leaders’ proposals to limit community gardening and farming, and promoted policies favoring community-owned agriculture. Its members included leaders of new nonprofits working on food justice in communities of color, such as VietLead and Urban Creators.

In 2012 and 2015, GJLI updated our 2008 census of community gardens and farms, assisted by geographer Peleg Kramer, political scientist Craig Borowiak, my students and me (Borowiak et al., 2018). We found significant, sustained growth of community gardens, but more uneven growth and then decline in the number of sites which growers called farms. The boundaries between those categories remained ambiguous, and the number of

community gardens stayed below that of the 1990s (Table 1).

GJLI and Soil Generation altered the city’s institutional ecosystem of urban agriculture, but they continued to operate in its system—and political economy—that tied urban agriculture to redevelopment. Cahn helped strengthen the FPAC’s urban agriculture committee, with its name, the Vacant Land Subcommittee, signaling its greatest focus. She advocated treating community gardens and farms as “commons” and characterized GJLI’s “interventions to hold enclosure at bay” as a process of “mak[ing] existing community-stewarded places visible and expos[ing] pathways to access” (Cahn & Segal, 2016, p. 196). This vision contrasted with the city’s ongoing realities.

GJLI, the FPAC, as well as PHS and NGT, sought to collaborate with the city’s nascent land bank, a tool for redevelopment whose primary purpose was putting properties back into taxpaying use. But their visions of land bank support for gardens and farms conflicted with other interests’ priorities for the land bank. Local council members still controlled land bank decisions about transferring land, and some council members were more favorable to urban agriculture than others. Advocates’ embrace of the land bank limited their ability to counter the “redevelopment model” that still dominated urban agriculture governance in the city.

Philadelphia in the twenty-first century regrew a vibrant urban agriculture sector *despite* lack of a coordinated public strategy or a strong land trust for community gardens and farms. But in the late 2010s efforts to change these conditions took important steps forward. The Neighborhood Gardens Trust expanded under subsequent leadership at PHS, from 38 community gardens in 2018 to

Table 1. Community Gardens and Farms Growing Food in Philadelphia

Year	# of community gardens	# of farms	Total gardens + farms
1996	501	at least 5	506
2008	227	about 8	235
2012	295	about 45	340
2015	387	about 31	418

almost 50 by 2021. Within city government, my former student Ash Richards convinced the Department of Parks and Recreation to create the position of Urban Agriculture Director and initiate a citywide urban agriculture plan. Soil Generation led community engagement for the planning process, although after initial meetings attended by hundreds of growers the COVID-19 pandemic slowed their work. The FarmPhilly program grew to serve some 60 gardens and farms on Parks and Recreation land, along with compost, education, and other programs for other growers in the city (FarmPhilly, 2021). Indeed, Philadelphia's greatest agricultural assets were virtually all located on parkland, including the Saul Agricultural High School farm and several other large farms and community gardens. Not coincidentally, these were the sites where agriculture in the city was most clearly treated as a public good.

In Philadelphia, agriculture has operated predominantly within a redevelopment framework, but also partly as a public good. As in many older industrial cities, vacant land remained an important part of urban agriculture, with attendant tensions between different visions of gardening and farming. Like New York under Mayor Rudy Giuliani, Philadelphia experienced an era in which the city bulldozed a substantial number of gardens, actions that with gentrification and growing interest in urban agriculture helped inspire a new era of activism. Like Detroit, Cleveland, and Oakland, but unlike New York and Seattle, the city lacked sustained collaboration between the parks and other departments, the land trust, and other urban agriculture support organizations. This lack limited its ability to develop a more stable, accessible system of land preservation and assistance for community gardens and farms distributed throughout the city. The city's urban agriculture support systems, and by extension community gardening and farming, remained embedded in and vulnerable to the cycles of economic growth and crises.

Chicago

By contrast, in the years since *Farming Inside Cities*, urban agriculture in Chicago became a more substantial public good, supported by a strengthened institutional infrastructure. But into the 1990s the

two cities shared significant similarities. Like Philadelphia, histories of urban agriculture in Chicago typically begin with its Vacant Lot Cultivation Association in the 1890s, and later World War and Great Depression-era gardens. In the post-World War Two decades, an elite-led horticulture organization, the Chicago Botanic Garden (CBG), largely dominated the community garden support system. Even before PHS in Philadelphia, however, the CBG community garden support program lost its core funding in the 1990s. By the time Kaufman and Bailkey visited Chicago at the end of the decade, the program was closed. Indeed, the complete collapse of citywide urban agriculture programs made room for Chicago to develop a new support system.

Kaufman and Bailkey did not mention the CBG in their 2000 report, or the Urban Gardens Program run by University of Illinois Extension, which had recently closed when Congress and the USDA defunded it in 1996. They concluded that a "strong citywide non-governmental support organization for urban agriculture does not exist to the same degree as in ... Boston and Philadelphia" (Kaufman & Bailkey, 2000, p. 33). Nevertheless, they highlighted emerging public and nonprofit support programs that were providing increasing support for urban farming and community gardening. As in Philadelphia, in 1999 they found a "diverse array of for-market urban agriculture projects are underway," and "most are managed by non-profit organizations" (p. 29). Two farms operated under the Resource Center, a nonprofit focused on job creation through recycling and other environmental projects. The God's Gang Worm and Fish Project and the Cabrini Greens program ran indoor vermiculture and aquaculture farms at public housing projects slated for demolition. Heifer International, a global anti-poverty nonprofit, supported these and other youth programs. Kaufman and Bailkey also highlighted three nascent farming projects: a youth project by Los Angeles-based Food From the 'Hood, in start-up phase; Growing Home, a job readiness program of the Chicago Coalition for the Homeless that was remediating its site; and a church garden that had recently begun producing vegetables, flowers, and duck eggs planned for sale. In addition, they pro-

filed volunteer-run Ginkgo Organic Garden, which donated its harvest to a restaurant that employed houseless people and a food pantry serving people with HIV and AIDS.

Indoor farming was more established in Chicago than in Philadelphia. The privately owned, for-profit Chicago Indoor Gardens was “growing eleven different varieties of sprouted grasses and beans under artificial conditions in a small factory building” (Kaufman & Bailkey, 2000, p. 28); started in 1987, it had ten employees, supplied supermarkets and health food stores, and reported US\$700,000 revenue in 1998. Kaufman and Bailkey noted other forms of less “formal” agricultural enterprise, mainly in immigrant communities, which studies of urban farming have often missed (and which they did not mention in their Philadelphia case study). These included “Hispanic women raising tilapia fish in their homes ... a solar greenhouse project on thirteen vacant lots in a West Side Hispanic neighborhood, and a possibly clandestine operation where Asian growers are raising vegetables beside the railroad lines on the city’s north side for an informal consortium of Vietnamese restaurateurs” (p. 29). These sorts of conditions also existed in Philadelphia in the late 1990s, mostly on marginal land near railroad tracks or the airport, often without ties to support organizations.

Kaufman and Bailkey expressed “guarded optimism” about city government and civil society support for urban agriculture, citing three main factors: “a strong city-wide greening movement centered in local government and supported by a number of non-profit organizations, an emerging interest in urban agriculture projects by a few local foundations, and the presence of Heifer Project International” (p. 30). This last institution had established “its first urban, North American office in 1996 in Chicago,” and had “become the leading institutional supporter of entrepreneurial urban agriculture projects in the city,” providing funding and technical support to ten projects, with more planned (pp. 31–32); thanks to these organizations, they asserted, “Chicago’s motto, *urbs in horto*, the ‘city in a garden,’ is being realized” (p. 29).

As in Philadelphia, city government in Chicago supported urban agriculture unevenly, although Kaufman and Bailkey perceived opportunities in its

enthusiastic embrace of other forms of urban greening: “A small cadre of people working for local government are supportive, but for most local government officials [urban farming] is not on their radar screens” (Kaufman & Bailkey, 2000, p. 33). Mayor Richard M. Daley had championed various sorts of greening, but not yet urban farming. The Department of Environment’s Greencorps program, however, had the mission “to enable Chicagoans to improve the quality of life in their neighborhoods by providing horticultural instruction, materials, and employment” (p. 30). It provided “about [US]\$3,000 worth of resources in the form of plants, materials, and soil amendments” (p. 30) to each of 71 gardens, and more modest assistance to another 137 groups cleaning vacant lots and planting and maintaining gardens.

One “unique public sector organization,” Kaufman and Bailkey (2000) predicted, “could be a boon to urban agriculture” (p. 30). Established in 1996, NeighborSpace was an autonomous non-profit community land trust, created through an intergovernmental agreement by the Department of Planning and Development, Chicago Park District, and Cook County Forest Preserve District (the agreement was renewed in 2016). Representatives of these agencies served on its board and approved NeighborSpace’s requests to acquire land for community-managed open space, principally community gardens. As a land trust, it held title to 60 garden properties by 1999; only seven grew food, and the rest were ornamental. NeighborSpace required “the community groups using the land to take responsibility for its management as a community project,” facilitating “public” ownership in multiple ways (p. 31). Remarkably, NeighborSpace staff reported “gaining local government support for urban agriculture was not a significant problem” (p. 31). However, unlike Philadelphia, they reported that “little, if any, interest in urban agriculture was found among Chicago’s community development corporations” (pp. 32–33). This is another way that Chicago’s urban agriculture was not embedded in its redevelopment systems.

Ultimately, Kaufman and Bailkey (2000) characterized entrepreneurial urban agriculture as “still

in an embryonic stage in Chicago. There are some hopeful signs that a firmer foothold might materialize ... in the future, but at present only a light layer of support exists” (p. 33); however, they concluded, compared to Philadelphia and Boston, Chicago contained “both the largest core of entrepreneurial urban agriculture activities and the municipal structure closest to fully supporting city farming as an alternate use of vacant land” (p. 34).

By 2011, when Ben Helphand invited me to work with NeighborSpace and other partners on a census of Chicago community gardens, the emergent trends that Kaufman and Bailkey identified a dozen years earlier were playing out. Heifer International closed its Chicago office the year before (as well as its nascent office in Philadelphia), and Greencorps had cut its support for community gardens. However, NeighborSpace helped convene gardeners to organize a new support system for themselves, the gardener-run Chicago Community Garden Association. Open to all community gardeners, this group effectively replaced the Botanic Garden and Greencorps as the citywide distributor of seedlings and other materials and support. It also gave Chicago an organized constituency of gardeners, who owned and ran key parts of the garden support system themselves.

Community gardening in Chicago has grown recently, with a substantial share of gardens preserved and most gardens now growing food. In 2013, we identified 209 community gardens growing food in the city. While we did not find reliable figures for earlier years, urban agriculture-support professionals in Chicago consistently reported that, as in Philadelphia, the number of community gardens in the city grew from the 1970s to early 1990s, diminished in the late 1990s and early 2000s, and was clearly growing again since the late 2000s. As research by NeighborSpace and our partners in the Chicago Urban Agriculture Mapping Project (CUAMP) since then has shown, the number of community gardens grew to 279 by 2018, 242 of them growing food (Chicago Urban Agriculture Mapping Project, n. d.; Taylor & Lovell, 2012). NeighborSpace held 71 gardens in 2010, and by 2018 it held 107 gardens and two nonprofit farms, with close to 70 more gardens in city parks (Hieggelke, 2010).

Chicago has remained a vibrant center of urban farming, despite substantial turnover. New farms since Kaufman and Bailkey’s late 1990s study included several worked by Growing Power’s youth programs (later the Urban Growers Collective, which survived Growing Power’s closure in Milwaukee); City Farm, envisioned as a temporary installment on the former site of the Cabrini Green housing project; the largely indoor aquaponic Iron Street Farm, a nonprofit youth program; several growing sites of Windy City Harvest, a youth program run by the Chicago Botanic Garden; two farms of Growing Home, including one held by NeighborSpace; and many other nonprofit and commercial farms. By 2018, CUAMP counted 88 sites calling themselves urban farms, community farms, or gardens operated by restaurants and catering companies (CUAMP, n.d.).

The group that ran CUAMP, Advocates for Urban Agriculture, established in 2002, also gave Chicago an organized constituency of farmers and home and community gardeners working together and with NeighborSpace to influence policy. Urged by these and other advocates, in 2007 Mayor Daley’s planning commission adopted the *Eat Local Live Healthy* plan, with a goal to increase food production in city neighborhoods (City of Chicago Department of Planning and Development [CCDPD], 2007). In 2011, Mayor Emanuel announced that the city would “relax fencing and parking requirements for larger commercial urban farms in order to hold down overhead costs for entrepreneurs and community organizations that launch and maintain these as enterprises” (Office of the Mayor, 2011, para. 5). New policies formalized permission for hydroponic, aquaponic, and apiary systems, and committed to supporting green job creation (CCDPD, 2011). Two years later, Emanuel endorsed a plan to make city land available for an expanded “incubator network” of workforce and small entrepreneur training farms (Rotenberk, 2013). These policies embraced a neoliberal vision of urban agriculture promoted by some Chicago farmers, casting agriculture as an engine of economic development. Nevertheless, the city’s ongoing support for community gardens was arguably more significant for a far larger number of Chicago residents.

NeighborSpace brought relative stability and equity to Chicago's landscape of community gardens and system of urban agriculture support, compared to many other cities. This manifested in more than just the growing number of gardens preserved and protected under its ownership and insurance. The organization grew partly out of the need to rectify the well-documented and visibly gross inequity in the distribution of public space in affluent and poorer parts of the city. For many aldermen, city bureaucrats, and much of NeighborSpace's leadership, promoting equity was its central reason for being. In more practical terms, the city has continued to donate land to NeighborSpace through the Department of Planning and Development and "invests in the garden infrastructure because successive administrations and city council members have prioritized these community spaces, but also because our process is predictable. NeighborSpace vets applicants thoroughly and establishes ongoing relationships with community stewards so that the land will be maintained for the long-term" (Helphand, 2015, p. 2; see also Ela, 2016; Ela & Rosenberg, 2017).

The organization's core focus on community stewardship represented an investment in social sustainability. Helphand (2015) notes that NeighborSpace "assists with an array of stewardship issues such as gaining access to water, fixing broken infrastructure, leadership transitions and emergencies such as a downed tree or someone driving through a fence, which might otherwise derail a community garden over the long-term" (p. 1). Like agricultural land trusts in other cities, it also addresses "[t]he requirements for insurance, leases, testing, permits and other hurdles that would drown [many] community gardens" (p. 1). Unlike NGA's experience with some of its gardens, "[w]hen a NeighborSpace-protected site is faced with challenges, such as a lack of interest or leadership capacity, it does not revert to vacancy" (p. 2). The organization's "staff works with the community to re-establish, deepen and/or expand community environmental stewardship" (p. 2).

Chicago has had a vibrant urban agriculture sector in the last decade thanks largely to two structural factors. First, it has an organized constituency of community gardeners, farmers, and allies

from around the city, with greater longevity, control of garden support systems, and influence on municipal government than in Philadelphia. Second, in addition to liberalizing support for urban agriculture as many cities have done since the mid-2000s, Chicago city agencies have made a clear, enduring commitment to urban agriculture in the creation and support of NeighborSpace. Centering urban agriculture support in a land trust, as complement to and in collaboration with the Park District, means that the institutional infrastructure of the community gardening system is at its core dedicated to fostering permanent ownership and community stewardship. The result is a system that, compared to Philadelphia and many other cities, is more accessible, navigable, and equitable—a public good.

Conclusion

Philadelphia and Chicago experienced similar histories of urban agriculture to the 1990s, but then took divergent paths in the structure, focus, and predominant values of their municipal and non-profit support systems. This yielded different experiences for community gardeners and farmers, due to different levels and trajectories of land preservation, organized advocacy, and public and private support. While NeighborSpace and the Neighborhood Gardens Trust resembled one another in their operations and the protections they provide for gardens (Helphand, 2015; Vitiello & Nairn, 2009), NeighborSpace has operated much more at the center of Chicago's urban agriculture system, with more stable and collaborative relationships with city agencies.


To a great extent, Philadelphians and their institutions have continued to view urban agriculture as an ephemeral redevelopment strategy to address social, economic, and health crises. Until recently, even activists rarely imagined a substantial shift away from the city's focus on access to vacant land through the land bank. In contrast, Ben Helphand casts NeighborSpace as a break in the history of treating agriculture as temporary, with its attendant booms and busts in support for gardening and farming. "In order to break out of this cycle," for agriculture to "have a permanent place in the urban geography it is imperative that models

are developed that provide both long-term land security and can navigate the vicissitudes of community interest” (Helphand, 2015, p. ii). If the organization “can successfully acquire a site, it holds the title *forever* and cannot be uprooted,” as long as community stewardship is sustained (p. 1). NeighborSpace characterizes this strategy as “permanently grassroots” (p. 2).

A growing body of evidence from research and practice suggests that it is time to break with the redevelopment paradigm as a major part of the approach to urban agriculture. Cities build stronger, more enduring and more equitable urban agriculture systems and sectors when they situate agriculture in a policy and institutional framework that does not seek to extract from growers a set of economic outcomes they are not well positioned to deliver (Helphand & Lawson, 2011; Hou et al., 2009; Pothukuchi, 2017, 2018; Vitiello & Wolf-Powers, 2014).

Urban agriculture should be valued for what it is demonstrably good at, primarily its social, health, and related non-market benefits. This means prioritizing urban agriculture as a public good that is accessible to the city’s range of publics, and a long-term land use. This does not mean giving up on entrepreneurial urban farming, but rather embracing the diversity and multi-functional impacts of urban farming by nonprofits and for-profits, individuals, and collectives. For governments, support organizations, advocates, and growers alike, this more realistic approach can make urban agriculture more manageable in practice as well. It means that farmers and gardeners incur less risk of failing to deliver on false promises; for instance, that agriculture in itself can solve poverty, obesity, or other

societal problems.

Centering urban agriculture systems in land trusts—not in land banks or redevelopment agencies—is essential for producing more sustainable and equitable urban landscapes of community gardens and farms. NeighborSpace provides a replicable model for doing this (Ela & Rosenberg, 2017). Elite horticulture organizations still play important roles in supporting growers in many cities; their histories remind us, however, that institutions without a mission centrally focused on urban agriculture can easily drift away from it when funding and other opportunities pull them elsewhere. By contrast, community land trusts prioritize enduring community benefits and community control. They are also well positioned for long-term collaboration with park systems, grower support programs, and other partners with social, environmental, and health missions. A central role for land trusts can help make agriculture a more permanent part of cities and communities, a public good whose benefits can accrue in more sustained and equitable fashion. 

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Sustainability outcomes of the United States food system: A systematic review

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Abstract

Food systems literature has shifted towards interdisciplinary and the use of systems lenses but can still be disjointed and unconnected. To bring together disciplinary knowledge and establish a common understanding of food systems, we conducted a systematic review to inventory sustainability outcomes of the U.S. food system. The literature search returned 2,866 articles, which was reduced to 49, reviewed here. A qualitative content analysis process identified 93 outcomes. These were split across three main themes of environmental, socio-economic, and health outcomes. This review also identified several trends in food systems literature,

such as an underrepresentation of socio-economic outcomes and a lack of inclusion of social outcomes in natural science journals. The sustainability outcomes inventoried here may help to facilitate greater communication and collaboration in food systems research and situate current and future food systems studies within this inventory.

Keywords

Food Systems, Sustainability, Systematic Review, Sustainability Outcomes, Food Systems Literature, Food System Outcomes

Introduction

It is difficult to underestimate the complexity of the food system. A single meal consists of individual ingredients with pathways from farm to fork

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that vary widely. Conceptualizations of food systems differ across disciplines and time, but recent definitions generally include the following: (1) processes or activities such as food production, processing, consumption, and disposal; (2) interactions among biogeophysical and human systems; and (3) environmental, socio-economic, and health outcomes (Béné et al., 2019a; Ericksen, 2008). Outcomes can be defined as the causal results of food system processes (Ericksen, 2008).

The term “food system” goes back several decades, but until more recently, most of the discussion was implicit or limited to a subsystem or a specific system element (Sobal et al., 1998). For example, agricultural and food security fields dominated early food systems literature and focused on topics such as production, distribution, consumption practices, or innovations that increased productivity and efficiency (Béné et al., 2019b; Reganold et al., 2011; Stephens et al., 2018). Much of the early conversation around sustainability focused on the environmental impacts of agriculture like soil erosion, climate change, or pollution (Béné et al., 2019b; Ericksen et al., 2009; Hallam et al., 1993; Hinrichs, 2012). Sustainability as a concept grew out of the two disconnected but parallel movements of environmental and social sustainability in the 1970s that critiqued capitalist economic growth (Purvis et al., 2019). The inclusion of health into the popularized, and criticized, “three pillars” or “three-legged stool” concept of social, economic, and environmental sustainability only began in the 1990s; it has gained prominence more recently and was accompanied by proponents of sustainable agriculture (Gillespie, 1995; Hancock, 1993; Purvis et al., 2019).

As an emerging field, writers of food systems literature aim to effectively incorporate multiple facets of sustainability through methods or lenses such as systems thinking and inter-/transdisciplinarity. However, a historical lack of interdisciplinarity in the food systems space, reflective of trends throughout scientific study, results in significant gaps in system understanding, theories, and methodologies (Béné et al., 2019a; Nelson et al., 2016a). For example, discussions of the impacts on health like income, social justice, and equity have become prevalent only more recently (Marmot,

2005; Solar & Irwin, 2006). Furthermore, much research that would fall within the food systems space (such as system aspects like agroecology or food science) retains a disciplinary focus and does not address the inherently interdisciplinary context of food systems (Béné et al., 2019a). These factors have resulted in food systems work that is fragmented and difficult to connect (Eakin et al., 2017; NRC, 2010).

Food system scholars call for increasingly integrative and interdisciplinary research to fill the gaps by addressing the system's diverse, interacting elements and outcomes (Constance, 2010; Hinrichs, 2012; Nelson et al., 2016a). The authors of a literature review of food system drivers, defined in that review as processes that influence the food system durably and consistently, concluded that a collective understanding of food system elements and dynamics is underdeveloped and that establishing a common foundation of food system knowledge is important to better assist academics, experts, and decision-makers in the food systems space (Béné et al., 2019b). These gaps prompted the question: What are the prominent sustainability outcomes of the U.S. food system, and how does food systems literature address the diverse and interconnected issues?

Within the review, we provide a comprehensive inventory of recent scientific literature about how the U.S. food system results in sustainability outcomes. We identify, categorize, and calculate the frequency of sustainability outcomes of the U.S. food system that are reported in recent scientific literature to draw insights about interdisciplinarity and trends within food systems literature. Our goal is to advance food systems literature by compiling often disparate information about the sustainability outcomes and provide a holistic and accessible evaluation that could be used to inform or contextualize further food system work. For example, the inventory of outcomes could be the basis for developing interdisciplinary metrics for evaluating a community's food system. While information and shared understanding is only one aspect of successful collaboration and problem-solving, it is an initial step that is needed in the sustainable food systems space.

Methods

Reviewing the Literature

We use two main processes: (1) a systematic review to ensure a holistic information base, and (2) qualitative hand-coding to identify outcomes within the texts. The methods used were adapted from standard systematic review methodologies for formulating and conducting a search (Tsafnat et al., 2014; Uman, 2011). We developed search terms, performed the search, removed duplicate texts, and screened the remaining abstracts and full texts based on inclusion and exclusion criteria. Content analysis methods like qualitative hand-coding are effective ways to identify concepts in texts and are a common approach to revealing trends across and within bodies of literature (Berelson, 1952; Hsieh & Shannon, 2005; Weber, 1990). Hand-coding is when a researcher manually reviews data by identifying concepts and assigning a code, which is very time-intensive but results in more inclusive coding that can capture meaning that would be missed by computer programs (Grimmer & Stewart, 2013; Nelson et al., 2021; Weber, 1990). For more detailed information on the systematic review process and rationale for choosing these methodologies, see Appendix A.

Coding the Literature

We began the analysis process by copying the exact terminology or phrasing used in the texts to describe or identify sustainability outcomes to a Microsoft Excel file. We then simplified the exact phrasing into more abstract or generalized coding terms. For example, one text may discuss “pathogen contamination of food” while another uses “foodborne pathogen,” both of which communicate the same outcome and would be grouped under the term “pathogen contamination of food.” The code reduction and organization process sorted and refined the initial 191 outcomes into three overarching themes: environmental, socio-economic, and health outcomes. In each theme, outcomes were organized into categories and subcategories.

Organization of Outcomes

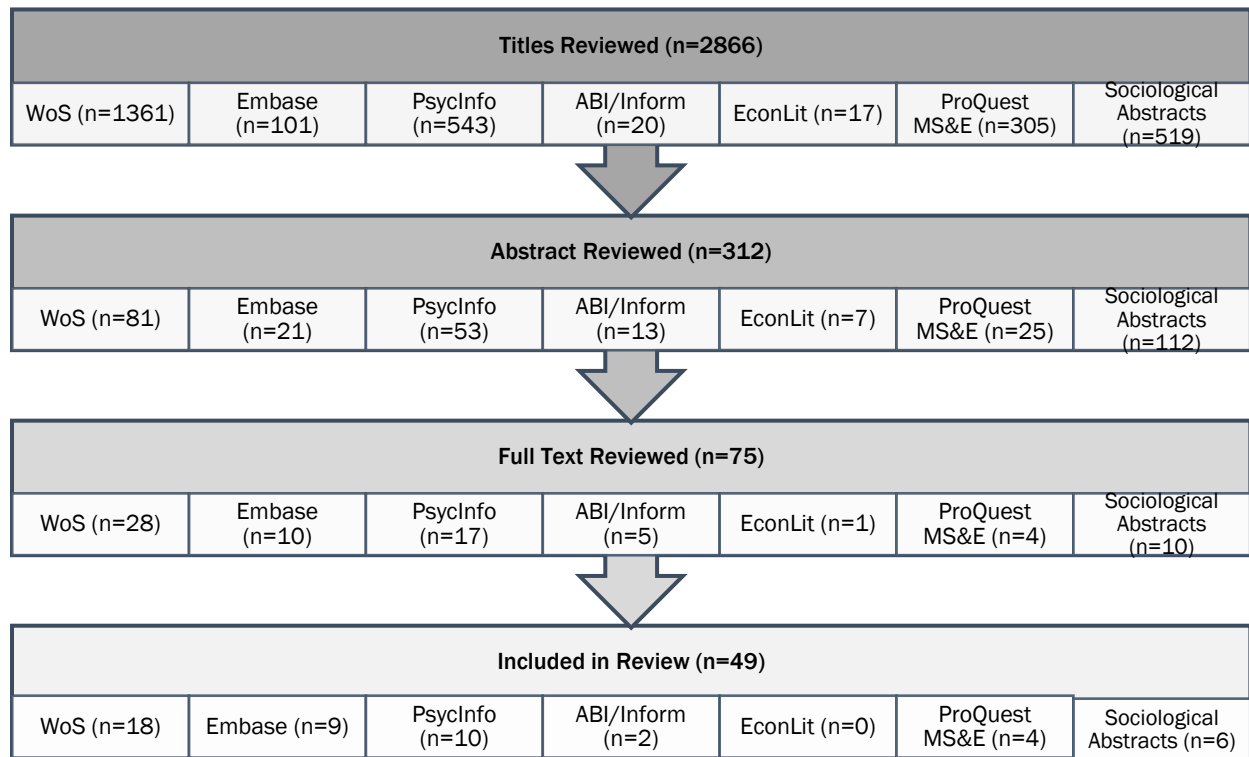
The organization of outcomes into themes, categories,

and subcategories was based on common groupings or connections that emerged from the source literature. Thus, the organizational method used a ‘grounded theory’ approach, as the clustering of outcomes was developed from the data rather than fitting concepts into a preexisting or preestablished scheme (Glaser & Strauss, 1967). A primary goal of the organizational process was ensuring that each outcome could only be coded into one category (i.e., mutual exclusivity) (Weber, 1990). The final organization of codes and outcomes represents an inventory of the major themes and prominence of outcomes based on how often they occur in the reviewed literature. Expanding or excluding outcome categories could deepen or streamline the process depending on the field or focus of work.

Results

The database search resulted in the collection of 2,866 articles, which was reduced to 75 based on the titles and abstracts using the remaining inclusion and exclusion criteria. At the full text review stage, 26 additional articles were excluded (see Figure 1 and Appendix D for a full list of reviewed documents). Common reasons for exclusion were focusing at the wrong scope ($n=7$) or on one specific sustainability issue ($n=8$). Other reasons include papers focusing on methodologies or recommending metrics ($n=4$) or papers that simply did not address the research question of this review ($n=3$). The publishing dates ranged from 1993 to 2019, with the majority published after 2013.

The initial round of coding resulted in 1,074 instances of coding, which identified 191 outcomes. In this first step, the articles had an average of 16.7 outcomes, with a range of three to 56 outcomes. The prevalence of outcomes also varied, with greenhouse gas emissions and water quality being present in 22 articles, while 51 of the outcomes were only in one article. This list of outcomes was then narrowed by compiling redundant codes and simplifying longer phrases. For example, “unsafe working conditions” and “dangerous working conditions” were combined. Each outcome was then organized into the hierarchical structure of categories, subcategories, and specific outcomes (see Table 1).

Figure 1. Flow Chart of Articles Resulting from Systematic Review Process

This second step resulted in the organization of 93 outcomes into three main themes: environmental, socio-economic, and human health outcomes (see Figure 2). The average number of codes per outcome is 10.24, but there was variation among the themes. The number of articles per outcome, or density of codes, indicates how prevalent an outcome was in the literature. The environmental outcomes theme had the highest average density of codes per outcome with 11.8, with the health outcomes and socio-environmental outcomes themes having 10.3 and 8.75 codes per outcome, respectively. A detailed explanation of each outcome identified, summarized from the reviewed literature, is in Appendix B. This breakdown can be

useful as an interdisciplinary introduction to the diversity of sustainability outcomes of the food system. For raw coding results, see Appendix C.

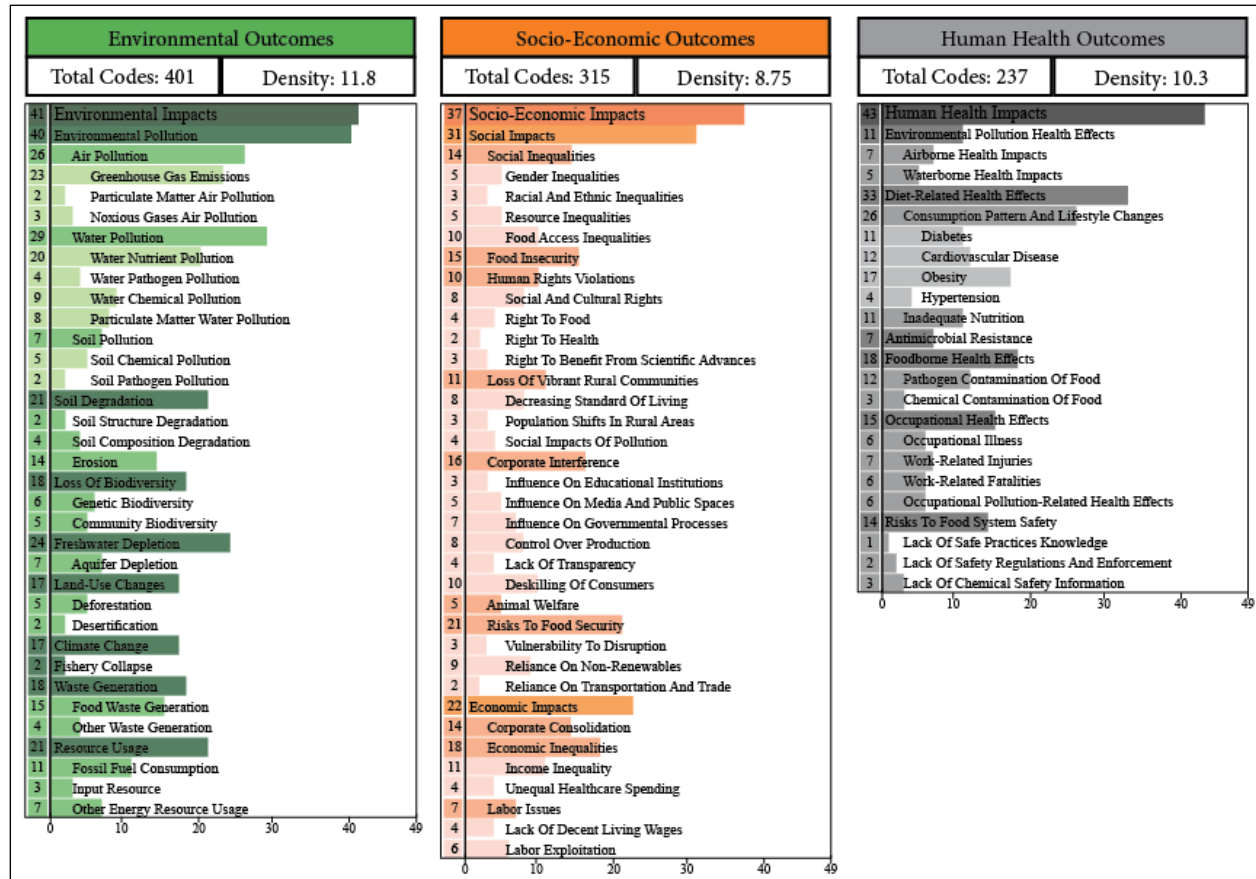
Thematic saturation occurred through 16 articles, with 33 contributing no novel outcomes. Of the selected articles, 59% identified at least one sustainability outcome in all three themes of environmental, socio-economic, and health outcomes, 29% identified two, and the remaining 12% identified only one. No article identified all 18 major categories; the articles ranged from 2 to 15 categories, with an average of 6.7 categories per document. Similarly, of a total possible 41 subcategories, the number of identifications ranged from 24 outcomes to one outcome and averaged 7.6.

Table 1. Outcome Organization Structure with Definitions and Examples

Definitions	Examples
Theme: Highest level of organization, contains the three main themes	Environmental Outcomes
Category: Concepts generally encompass many outcomes or cannot be sorted into another category	Environmental Pollution
Subcategory: Used when helpful to group similar outcomes within categories	Air Pollution
Specific Outcome: All outcomes within subcategories	Greenhouse Gas Emissions

Figure 2. Organization of Outcomes Identified by Systematic Review, Including Number of Coding Instances

Coding frequency is represented as a bar graph, with the hue of each bar representing the organizational structure (i.e., the darkest color is the theme, and the lightest is the specific outcome). Indentation also represents the structure, with the furthest indented being the specific outcomes.



Finally, we categorized each article as published in a natural science, social science, health, or interdisciplinary journal. While the discipline of the journal is not a perfect match for the disciplinary background of the authors or methods, this proxy was used because, ostensibly, the content of the articles needed to fit the purpose and scope of the journal, and journals contribute to the body of literature of the different fields. For both the environmental and socio-economic outcomes theme, the corresponding discipline (natural science and social science) had the highest percentage of identification. While social science did identify environmental outcomes less often than the other disciplines (60%), only 43% of the natural science journal articles identified an outcome in the socio-economic theme (see Figure 3).

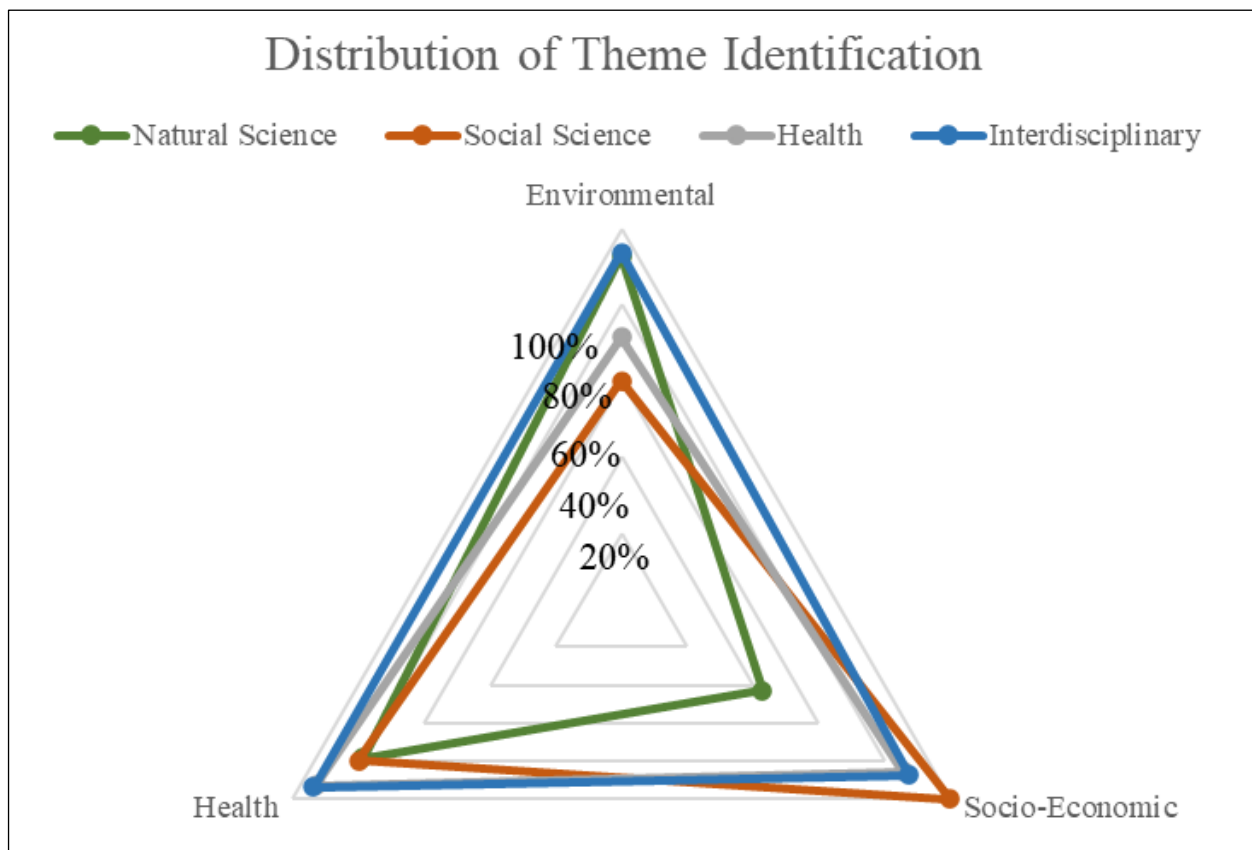
Discussion

High-Level Trends

No single article identified all categories, much less all 93 sustainability outcomes

These results justify, in part, this systematic review's goal of compiling disconnected information in food systems literature because no single article identified all categories or subcategories of outcomes. The systematic review and coding process also enabled the creation of a qualitative system map based on the connections drawn by the articles included in the systematic review (see Figure 4).

Figure 3. Percent of Papers in Each Discipline Category Identifying at Least One Outcome Within the Three Themes



Lack of disciplinary overlap between natural sciences and social sciences

By organizing the articles into disciplines, we were able to analyze trends within and between different disciplines. While the goal of the search terms was to return articles that used systems lenses and discussed the food system interdisciplinarity, the articles from social science journals included in this review discussed environmental outcomes to a higher degree than the natural science counterparts discussed socio-economic outcomes (see Figure 4). The distribution of theme identification by journal discipline also shows the success of interdisciplinary journals at identifying outcomes across the sustainability spectrum. This difference in the overlap between disciplines is prevalent throughout food systems literature, partially by nature of the disciplinary focuses and the dominant narratives that shaped early food systems work.

However, almost 60% of the articles included a sustainability outcome within all three themes, and

almost every article published in an interdisciplinary journal included outcomes across the themes. This result speaks to the success and strength of current interdisciplinary work in the food systems space. While a common knowledge base is still developing for the field, research can and is connecting diverse outcomes using innovative methodologies and partnerships to understand complex socio-environmental systems.

High and low instances of coding

High or low instances of coding represent the relative prominence of outcomes within the surveyed work. The sample of articles does not encompass the entire field of food systems literature or work on these outcomes outside of the food systems space, so it does not imply that these concepts are understudied. For example, there is an entire body of work on animal welfare and ethics, but the outcome is comparatively less prevalent than issues such as environmental pollution or diet-related

health effects. However, the implication of lower or higher coding instances can speak to the pervasiveness or the relative importance placed on these outcomes in food systems literature.

System map

The relationships among outcomes were qualitatively assessed based on the connections described by the articles included in the systematic review. Causal loop diagramming (CLD) from qualitative data such as interview transcripts or text documents is one way of presenting results (Yearworth & White, 2013). The consolidation of diverse and complex information into a system map necessitates balancing fine details and readability and/or usability. The outcomes included in this map are

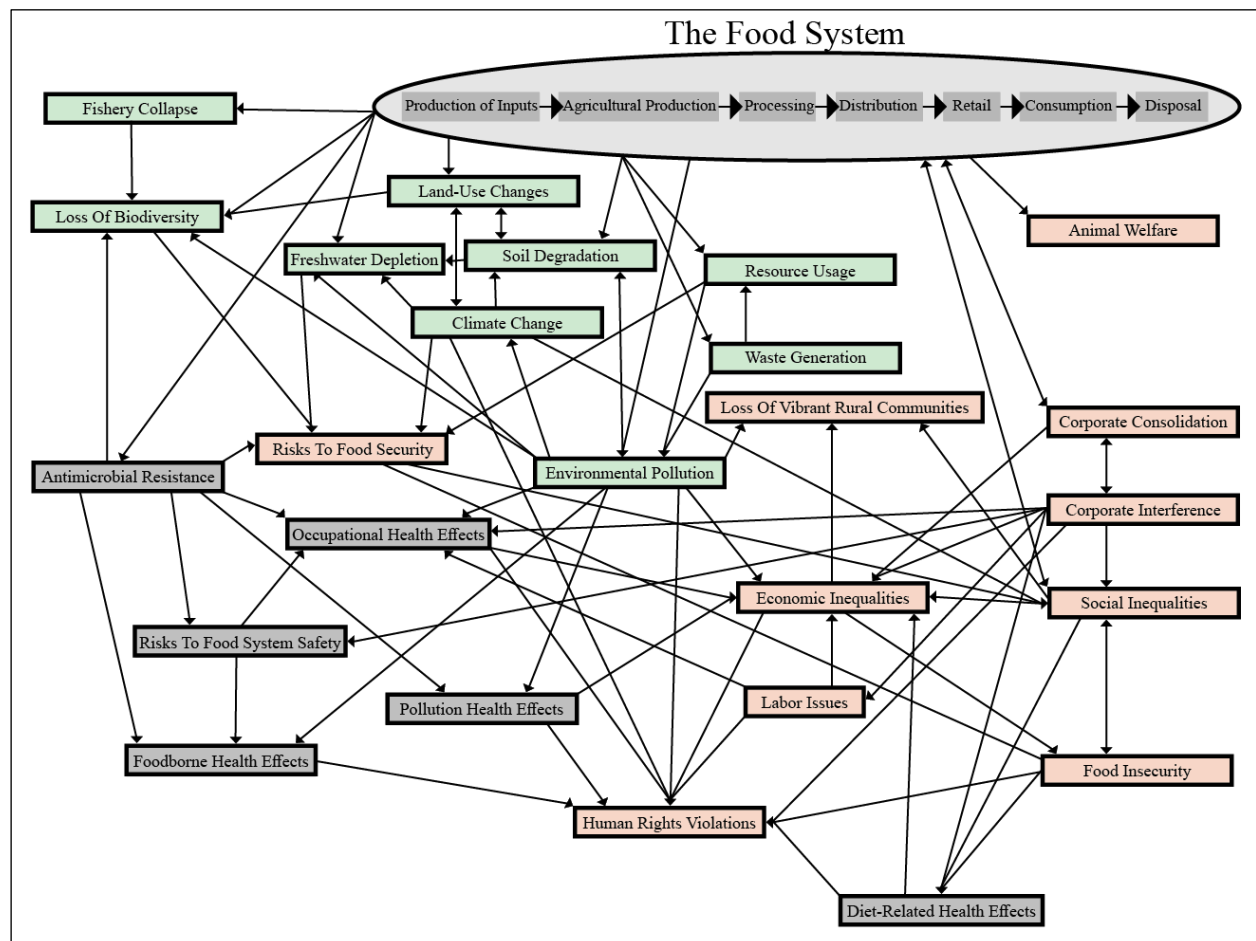
the categories and subcategories, when appropriate, developed through this review. We organized the diagram specifically to be approachable, comprehensive, and useful for continuing conversations about food system dynamics (see Figure 5). As this is not a review of system dynamics, the connections were not quantitatively assessed, and important external relationships or trade-offs associated with the food system are outside the scope of this paper.

Limitations

A key limitation of this review is the selection of hand-coding as the data collection process. During the coding process, we inferred categories based on qualitative assumptions of similar meanings or con-

Figure 4. Sustainability Outcomes Map of the U.S. Food System

Connections are based on the reviewed literature, with arrows representing the direction of outcome. The colors represent the organizational structure; green is environmental outcomes, grey is health outcomes, and orange is socio-economic outcomes.



notations among concepts, which introduces limitations such as biases from personal lenses and reduced processing capabilities but enables the collection of more rich and complete data (Weber, 1990). However, these risks were addressed by generating the outcomes and organizational structure from the literature. The hand-coding process is also very time intensive, so several decisions, such as limiting the review to peer-reviewed articles and a limited list of databases, were made to focus on articles that would efficiently answer the research question. Sources outside of published, peer-reviewed articles likely use different terminology to discuss outcomes or contain more specialized outcomes that are relevant to specific fields, places, or subsystems. Finally, papers that would fit the inclusion criteria were likely published after the review was conducted. These limitations are managed through achieving data saturation, as more sustainability outcomes are unlikely to be identified by including more sources such as grey literature and studies from 2020/21. It is important to note that this review does not encompass the possibility of new outcomes that are connected to COVID-19.

A final limitation is the high-level view of the U.S. food system. Purposely taking a national lens and discussing a topic at a high level of abstraction is ill-suited to encompass all geographic and temporal heterogeneities in the food system. As such, the inventory of sustainability outcomes and connections drawn between them does not reflect all food systems within the U.S. but can be beneficial as a starting point or framework for further work to contextualize a smaller food system with specific actors, decision-makers, and system elements and behaviors. The corollary limitation of focusing on the U.S. is that the review did not include outcomes associated with the globalized food system. Some examples would be deforestation in other countries because of demand in the U.S. or increased water stress in the U.S. due to exported goods, but this was outside the scope of the systematic review and should be included in future related work.

Conclusions

This review identified 93 sustainability outcomes that represent the diversity of environments, work-

ers, communities, and consumers involved in the food system. Sustainability outcomes influence each other and are deeply connected to the physical food system and social, environmental, and economic systems. As evidenced by the relative frequencies of coding in this review, some outcomes are more prevalent than others in the literature, but that does not imply that these are less significant. The goal of our review was to inventory the sustainability outcomes relevant at the national scale. While more depth or details could be added based on smaller-scale food systems (for example, specific chemical pollutants, pathogens, or health outcomes relevant to a system or locality), each would most likely fall under one of the established outcomes or categories.

Interdisciplinary research has become more prominent in the last few decades through academic institutionalization of interdisciplinarity and more focus on and funding for inter-/transdisciplinary food systems work, but disciplines can remain siloed, and information is still disparate (Hinrichs, 2012). This is demonstrated by the differences in outcome identification density across themes, as 12% of system-level articles only identified outcomes within one theme, and no article identified all 18 categories. This trend is certainly not unique to food systems work; much research has disciplinary foci. Food systems literature is also a relatively new, developing field, and through this review, we aim to contribute to building a common understanding and interdisciplinarity through the compilation and organization of sustainability outcomes and the discussion of the prevalence of different outcomes in the surveyed literature.

There are several ways in which this review could be used in future research or food systems work. Not all future food systems studies need to consider all the outcomes inventoried by this review, as many will be irrelevant or outside the scope of research projects or specific research questions. However, the holistic inventory can still be useful as a basis for the purposeful selection of what is or is not relevant to a project. The full list of outcomes can serve as an extensive list of which outcomes or categories could be considered, which may be out of the traditional disciplinary scope. A common example would be an agricultural evalua-

tion considering not only the environmental outcome of a pollutant but also the effects on community health. Consulting the full inventory of outcomes may provide additional criteria to assess that would be potentially less intuitive or prevalent.

The inventoried sustainability outcomes can also be used to contextualize work within smaller scoped food systems, as it can provide a broad variety of outcomes upon which to have conversations about, for example, the outcomes of policies or management choices. Other possible uses include as the basis for an assessment tool to evaluate the current state of outcomes and track change over time or identify areas for improvement, as a benchmark of which outcomes have been identified as of 2019 (potentially relevant to studying the food system during or after COVID-19), or as a set of possible evaluation criteria for building a decision support tool based on stakeholder concerns.

Building a holistic understanding of the food systems field is an important first step to more effective and efficient work through directly incorporating inter-/multidisciplinary knowledge and skills

and acknowledging and addressing the connections of disciplinary topics to other sustainability issues. One benefit of interdisciplinary work would be the ability to coordinate efforts to address multiple sustainability issues concurrently, which can result in efficiencies through goal alignment, selecting a portfolio of interventions, the creation of diverse alliances, and the ability to implement changes at multiple levels (Barnhill et al., 2018; Ruben et al., 2019). The inventory generated by this review can be used as a starting point for continued work in food systems and to contextualize changes. The complexity, interdisciplinarity, and scope of the food system tie directly to the extensive sustainability outcomes, which makes sustainable food systems a significant opportunity to impact the well-being of the environment and people in the United States.

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Appendix A. Methodology Details

Systematic reviews originated largely in health care as a methodology to critically review literature, conduct meta-analyses, and reach clinical conclusions but have been applied to other fields (Morton et al., 2011). The methodology behind systematic reviews was designed to create an explicit process for informed choices about the research design, which reduces some selection biases (e.g., unrepresentative or biased selection of articles to be reviewed) that can be present in narrative reviews (Collier & Mahoney, 1996; Uman, 2011). The systematic review steps we took were: (1) formulate a review question, (2) search for existing systematic reviews, (3) write a protocol, (4) devise a search strategy, and (5) execute the search (Tsafnat et al., 2014; Uman, 2011).

Qualitative hand-coding is one common way to examine textual data (Berelson, 1952; Hsieh & Shannon, 2005). Codes can be a word or short phrases that capture the meaning of that segment of text (Nelson et al., 2021; Saldaña, 2016). Hand-coding, as opposed to computer-aided content analysis, comes with trade-offs. Manually reviewing and iteratively coding texts is very time intensive, which can limit the number of texts that can be analyzed (Grimmer & Stewart, 2013; Nelson et al., 2021). However, hand-coding results in more inclusive coding that can capture meaning that computer programs can miss. Computer programs can quickly process many texts for common words but, without more complex processes like machine learning, are ill-equipped to manage phrases, indirect references, or other ambiguities (Nelson et al., 2021; Weber, 1990). Hand-coding allows meaning to be analyzed beyond specific words to identify concepts that are communicated through sentences, paragraphs, or with different phrasing (Weber, 1990). This advantage of hand-coding is necessary for the interdisciplinary scope of this review and outweighs the trade-off of additional time.

We developed the search terms to gather papers that focus on the food system in the United States and either discuss or provide some assessment of sustainability outcomes, if not directly using the term sustainability. The final search terms used were food system* AND (assessment OR

sustainability*) AND United States*. Asterisks were used at the end of the terms, allowing multiple forms of the word to be present in the search results. An OR qualifier was used to account for some temporal variation or disciplinary conventions, as “sustainability” is not a pervasive term across time or disciplines. The use of “food system” was used to focus the search on papers in the food systems field or that discuss sustainability outcomes at a system-level. For the purpose of this review, the system level is broadly categorized as the inclusion of multiple system elements and their interactions that are relevant to the U.S. food system. As hundreds of thousands of papers address, to some degree, the sustainability of the food system through work at smaller scopes and/or with higher resolution, our primary rationale for choosing system-level sources was to enable a broad, holistic analysis within the logistical bounds of qualitative hand-coding.

The inclusion criteria were developed based on best practices in other peer-reviewed systematic reviews and the scope of the specific research question (Allum et al., 2008; Gruen et al., 2008; Guo & Gifford, 2002; Meijer et al., 2012; Osbaldiston & Schott, 2012). To be included in the review, content must be peer-reviewed, written in English, and published in the last 30 years (1989-2019). The final inclusion criterion limits possible results to focus on more recent articles and thus on the most current and relevant outcomes of the food system (Osborne & Schott, 2012). The articles must encompass the U.S. food system, either by focusing specifically on the U.S. or North America or cover the global food system. Studies focusing on a single commodity or localized food system were excluded from the analysis.

Several of our choices, such as limiting the sources to peer-reviewed articles and excluding very narrow scopes, were shaped by the time intensity of hand-coding. However, some risks are allayed by necessitating data saturation. Data saturation, in this case, inductive thematic saturation, is when there is consistent evidence of the same codes being used across documents so that additional data collection (review of more articles)

would likely not result in the identification of new themes (Guest et al., 2006; Saunders et al., 2018). We calculated saturation by determining which of the reviewed articles contained no new or novel outcomes (i.e., can be coded using existing outcomes), as thematic saturation necessitates finding consistent evidence of the same codes being used across documents (Urquhart, 2012). Achieving thematic saturation means the collected outcomes can be considered a comprehensive inventory.

Database selection was based on coverage of the core disciplines and bodies of knowledge associated with the food system, including natural sci-

ences, social sciences, health, and engineering. Seven databases were chosen based on previous systematic reviews related to food systems: Web of Science, Embase, PsycInfo, ABI/Inform, EconLit, ProQuest Materials Science and Engineering, and Sociological Abstracts. While many other databases exist that also contain food systems papers, these seven covered the core disciplines and thus would likely return enough articles to achieve data saturation. If data saturation were not reached within the initially collected articles, we would search additional databases.

Appendix B. Explanation of Outcomes

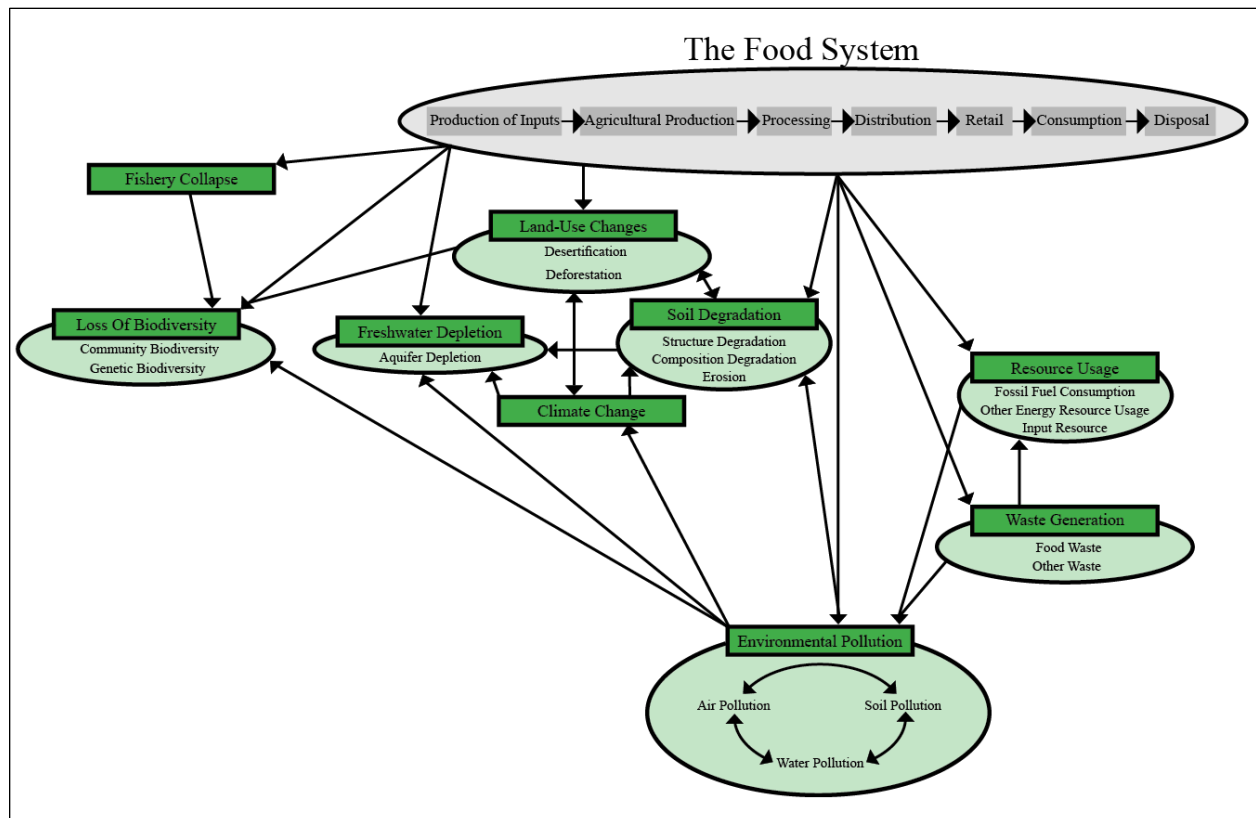
The following discussion of the inventoried sustainability outcomes is organized into the three main themes: environmental, socio-economic, and human health outcomes. Each section details each outcome and visualizes the categories and subcategories to provide an overview and explanation of each identified outcome and provide connections among outcomes and the food system.

Environmental Outcomes

The theme of environmental outcomes is split into nine categories: environmental pollution, soil degradation, loss of biodiversity, freshwater depletion, land-use changes, climate change, fishery collapse, waste generation, and resource usage (see Figure B1). **Environmental pollution** was the most often identified category, with 40 out of 49 articles mentioning a concept within that category. The category is split into the three subcategories of **air, wa-**

ter, and soil pollution. Beginning with air pollution, the food system is a major contributor to **greenhouse gas (GHG) emissions** in the U.S. and is a significant component of the global carbon cycle. Greenhouse gas emissions occur through many processes, such as methane emissions from ruminant animals and decomposing organic materials, fossil fuels usage throughout the system, and the burning of crop residue (Heller & Keoleian, 2003; Hickey & Ozbay, 2014; Udeigwe et al., 2015; Wallinga, 2009). The burning of crop residue is also linked to **particulate matter (PM) air pollution**, which can also result from conventional tilling practices, applying biosolids and agricultural chemicals to fields, and feedlot emissions (Rossi & Garner, 2014; Udeigwe et al., 2015; Wallinga, 2009). The final specific outcome within air pollution, **noxious gases**, can also be emitted from food system processes, such as ammonia from live-

Figure B1. Environmental Outcomes Map of the U.S. Food System, Outcomes Derived from the Literature Review



stock rearing (Rossi & Garner, 2014; Udeigwe et al., 2015).

Soil pollution, water pollution, and, to a lesser extent, air pollution are tightly linked due to biogeochemical cycles. As such, the three pollution mediums are circuitously linked in Figure B1. Pollution in one medium often leads to pollution in another, especially in agricultural systems where irrigation or rain carries soil pollutants to water bodies. Pesticides, fertilizers, and biosolids applied to soils, common practices in conventional agriculture, run off through rain or irrigation and pollute surface and groundwater (Udeigwe et al., 2015; Wallinga, 2009). Other pollutants can be present in soils from the use of agricultural **chemicals** or polluted irrigation water (Johnston et al., 2014; Udeigwe et al., 2015). Another source of contamination is **pathogens** that are spread through the application of biosolids or animal manure to agricultural fields, from direct runoff or leakage from livestock operations or mismanaged manure, or through the irrigation of fields by contaminated water (Chapman & Gunter, 2018; Udeigwe et al., 2015). Water and soil pollutants are tightly linked, as **nutrient** runoff from soils can lead to eutrophication events that damage the health of local flora and fauna (Wallinga, 2009). Water can also become polluted by **particulate matter**, particularly through sediment deposition from erosion (Rossi & Garner, 2014).

The second category is **soil degradation**, which, while linked to soil pollution, focuses on the loss of healthy soil **structure** and **composition** and the loss of agricultural soils through **erosion**. Soil health is determined by complex interactions between soil biodiversity and soil structures and functions. Biodiversity within soils, for example, earthworms, ants, and microbial diversity, impacts net primary productivity, which has huge implications for agriculture (Lal, 2007). Certain cropping or grazing practices accelerate rates of erosion and the loss of soil organic matter and other crucial nutrients (Rossi & Garner, 2014; Wallinga, 2009). Soil degradation is a significant problem because soil quality affects the water passing through or over it and the capacity of soils to retain water, which has implications for water pollution, yield, and resiliency to water scarcity (Lal, 2007).

The **loss of biodiversity** category is split into two subcategories: **genetic biodiversity** and **community biodiversity**. Environmental pollution is a significant driver of biodiversity loss, as it has the potential to damage the local ecosystem through direct events like hypoxia or toxic algae blooms or through weakening the defenses of organisms and making them more vulnerable to stressors or infection (Wallinga, 2009). Pesticides, pollution from waste generated by the food system, and exposure to antimicrobial resistant bacteria affect community biodiversity (Hickey & Ozbay, 2014; Mohareb et al., 2018; Wallinga, 2009). Several factors influence genetic biodiversity. Firstly, as community biodiversity degrades, the genetic pool shrinks. Secondly, the genetic diversity decreases through selective breeding and genetically modified organisms (GMOs), which are increasingly prevalent. Low genetic diversity increases the risk for catastrophic losses from diseases or pests, as there is little to no variation in defensive mechanisms or immunities. Furthermore, the loss of genetic biodiversity in agricultural species, and the ecosystem at large, lowers the adaptive capacities of organisms and their abilities to handle shocks like climate change (Lal, 2007; Shannon et al., 2015). The importance of resilience is reflected in another category, **fishery collapse**. Overfishing can lead to the collapse of many aquatic species and a limited ability to survive additional shocks (Johnston et al., 2014).

Several interconnected categories include **freshwater depletion**, **land-use changes**, and **climate change**. Climate change and the food system are highly linked. The food system accelerates climate change by emitting GHGs and is vulnerable to the predicted impacts of global climate disruption. As temperatures rise and weather patterns change, it is predicted there will be a loss of soil fertility and disruptions to hydrological cycles, reducing freshwater availability and increasing the need for irrigation (Lal, 2007; Wallinga, 2009). Food production is currently a water-intensive industry, and freshwater depletion through water usage, especially irrigation, and water pollution, is a serious concern (Lal, 2007). In particular, **aquifers** are a slowly replenishing source of freshwater, and withdrawals for irrigation are, in some locations, higher than regeneration rates (Heller & Keoleian,

2003; Udeigwe et al., 2015; Wallinga, 2009). Loss of soil fertility due to the effects of climate change and agricultural processes lower both the ability to produce crops as well as soils' resistance to **desertification** (Lal, 2007). Desertification is just one pressure for land-use change related to agriculture. Urbanization removes potential farmland and reduces viable crop area, while **deforestation** to clear for agricultural land affects global carbon sequestration (Hickey & Ozbay, 2014; Lal, 2007). In addition, land-use change can result in the loss of biodiversity, disruption of natural ecosystems, and overall degradation of the environment (Thyberg & Tonjes, 2016). Land is a stock of carbon that fluctuates based on land-use and treatment, so the usage of land and agricultural practices can be a contributor or detractor to climate change.

The next category, **waste generation**, largely focuses on **food waste and/or loss**. Food waste can occur at any stage of the food system, but emphasis is often placed on post-consumer edible waste as it can be minimized through behavior changes (Conrad et al., 2018). The environmental outcomes are twofold. Firstly, the disposal of food waste through the municipal waste stream uses resources and landfill space, and the decomposition generates methane (Mohareb et al., 2018; Thyberg & Tonjes, 2016). Secondly, the resources, such as water, soil, fossil fuels, and agricultural chemicals used to produce the food, are wasted (Hickey & Ozbay, 2014; Thyberg & Tonjes, 2016). This reduces the efficiency of the food system and increases the environmental burden. **Other wastes** generated by the food system include packaging wastes from transportation and shipping or food packaging like plastic wraps, corrugated boxes, etc. (Heller & Keoleian, 2003; Mohareb et al., 2018). Waste, from litter to microplastics or organic pollutants in wastewater, has diverse impacts on ecosystem health.

The final category in the environmental outcome theme is **resource usage**, specifically non-renewable resources. As discussed previously, the food system is largely dependent on **fossil fuels** to produce agricultural inputs, irrigate fields, operate machinery, house animals, and transport, process, retail, store, and prepare food (Johnston et al., 2014; Shannon et al., 2015). **Other energy re-**

sources like electricity are used for several of those processes, including irrigation, food processing machinery, refrigeration, and at-home appliances, and depending on electricity grid emissions factor, are associated with GHG emissions (Heller & Keoleian, 2003; Mohareb et al., 2018). Other non-renewable **input resources** include phosphate rocks mined for fertilizers, chemicals such as pesticides, and pharmaceuticals like antibiotics (Lal, 2007; Shannon et al., 2015; Wallinga, 2009).

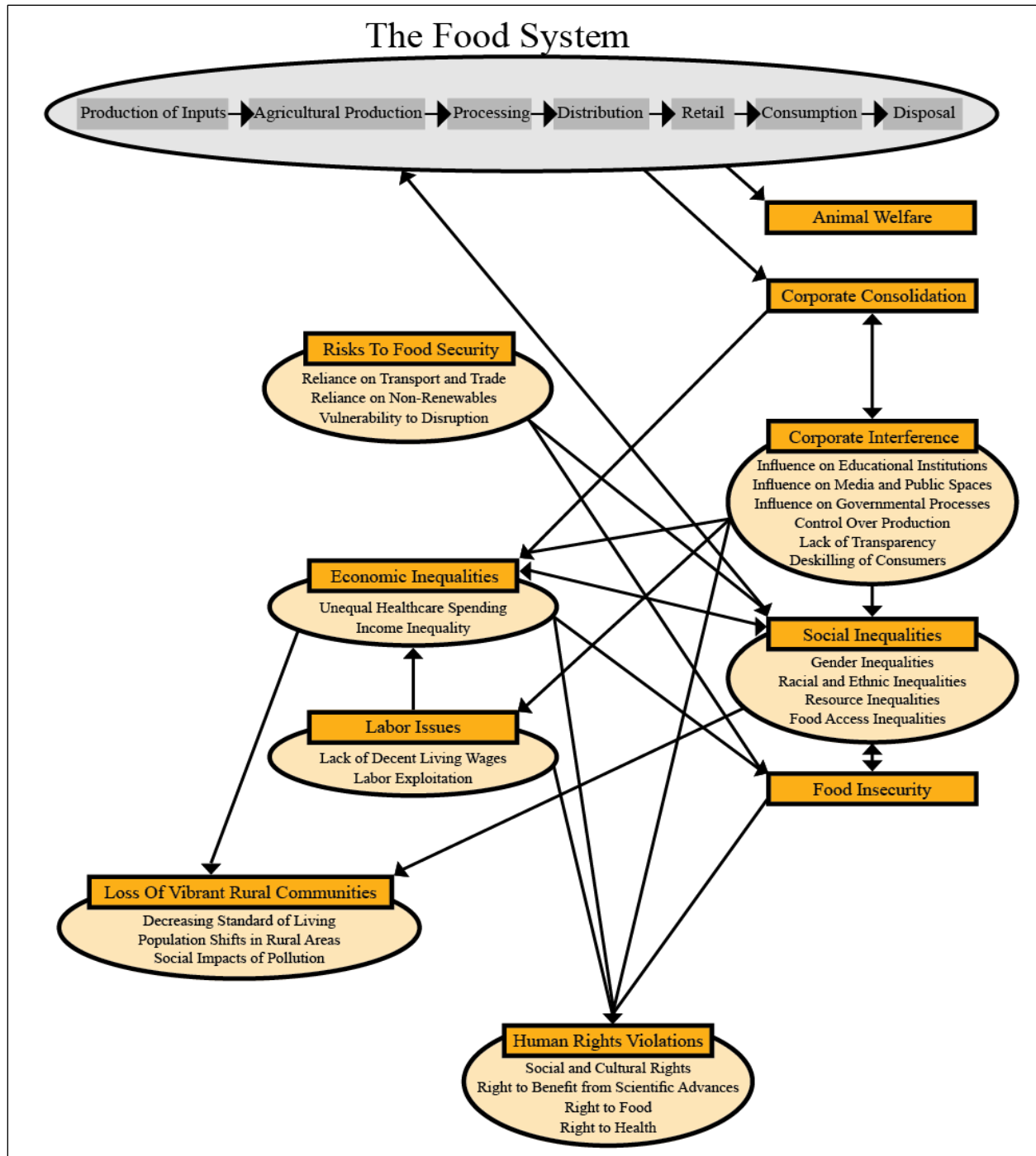
Socio-Economic Outcomes

The theme of socio-economic outcomes is split into three categories: **social outcomes, economic outcomes, and risks to food system security** (Figure B2). Many social, economic, and health outcomes are circuitously linked, as systemic discrimination and disenfranchisement drive economic inequalities and disproportionate health outcomes, which in turn serve as barriers to equity and justice. There are also many trade-offs associated with social and economic systems, as benefits for one group of people, for example, employees in a sector, residents of an area, or social identity group, may be at the detriment of another. While some of these nuances will be discussed below, there are many aspects of society, economics, and politics in the U.S. relevant to the food system that are not encompassed by this review. For example, the social, economic, and health outcomes for workers will be discussed, but further details on the drivers of these conditions, such as immigration and labor laws, will not be explored in depth. As previously stated, a primary goal is to inventory the outcomes of the food system, and a comprehensive analysis of system drivers is beyond the scope of this review.

Social Outcomes

The social outcomes category contains six subcategories: social inequalities, food insecurity, human rights violations, loss of vibrant rural communities, corporate interference, and animal welfare. **Social inequalities** are a broad subcategory that spans **gender, racial and ethnic, resource, and food access inequalities**. The food system is both subject to and upholds structural discrimination. Discriminatory pressures and historical disenfranchise-

Figure B2. Socio-Economic Outcomes Map of the U.S. Food System, Outcomes Derived from the Literature Review



ment have influenced the food system structure, but the behavior of the food system maintains inequalities through the distribution of or access to resources and opportunities. Agricultural practices in

the U.S. have a deep history of discrimination and colonization through the privatization and commodification of land by white and wealthy individuals (Horst & Marion, 2019). The United States ex-

ists because of the dispossession of land from indigenous peoples through physical violence and manipulation. The development and execution of agriculture and the food industry in the United States have depended on the exploitation of marginalized groups throughout history, including the enslavement of millions of Africans and discriminatory treatment of immigrants (Horst & Marion, 2019). These practices, for example, policies in the late 19th and early 20th century banning Asian Americans from owning land, inheritance laws that made it difficult for women to possess land, or complex immigration policies, shaped who is allowed or able to own land (Horst & Marion, 2019). Women historically shoulder the brunt of food procurement and preparation responsibilities in the home, which is economically undervalued labor, knowledge, and skills (Jaffe & Gertler, 2006). Gender, racial, and ethnic inequalities exist throughout the food system and are connected to other social, economic, and health outcomes.

The final two subcategories of social inequalities are **resource** and **food access inequalities**. Resource inequalities include aspects like education, healthcare, and opportunities (Cachelin et al., 2019). Unequal distribution of resources can impact people's health, well-being, and ability to pursue their desires. For example, women and people of color are less likely to be recipients of lending from the USDA, an opportunity to gain the capital necessary to start an agricultural operation (Horst & Marion, 2019). Food access, both amount and types of food, is not equitable. City planning, private sector investment, and federal subsidies led to supermarkets being largely located in suburbs, lowering the accessibility of fresh produce in city centers and rural areas (Anderson, 2008; Elmes, 2018). The food available in these underserved areas is more often processed, convenience food that is high calorie and nutrient-poor, the consumption of which can lead to negative health outcomes (Anderson, 2008; Cachelin et al., 2019).

Food insecurity affects millions of households in the United States every year and disproportionately affects women, people of color, and recent immigrants (Anderson, 2008; Cachelin et al., 2019). Food insecurity can be influenced by food access inequalities and is influenced by income,

food price, cultural suitability of food, and food preparation knowledge and skills. The outcomes of food insecurity are multifold, as hunger impacts individuals' ability to focus (particularly damaging for food insecure students), cognition, decision-making, and risk-taking behavior (Elmes, 2018). Government nutritional assistance programs like SNAP or WIC, while important stopgaps, do not address the root of the problem, like economic inequalities, and often do not provide recipients with the necessary funds to purchase more expensive, healthy foods (Anderson, 2008). There is a relationship between poverty, food insecurity, and obesity as filling, processed foods are often both cheap and unhealthy (Elmes, 2018). Some potential benefits of reducing food waste would be that the diverted waste could be used to reduce food insecurity or that avoided food waste increases food availability (Hickey & Ozbay, 2014). However, global agriculture produces enough calories to sustain the population, which implies that food insecurity is more likely a distributional and economic issue than a lack of production quantity (McInnes & Mount, 2017).

The next category is **human rights violations**, which does not have a universal definition; there is disagreement about what constitutes a human right (Anderson, 2008). Economic, social, and cultural rights like the **right to food, health, or a livable income** are violated by the food system through outcomes like food insecurity and access inequalities, environmental pollution, unsafe workplaces, and lack of decent living wages. **Social and cultural rights** include aspects like intergenerational justice, the right to participate in cultural life, and the right to democratic participation in decisions about the food system (Anderson, 2008). Climate change, which the food system accelerates, fundamentally impinges upon intergenerational justice. The loss of traditional foodways—the cultural practices surrounding food—reduces people's ability to practice and enjoy their culture (Anderson & Cook, 1999; Cachelin et al., 2019). Food is not simply a nutritional input necessary for physical functioning but an aspect of identity, family, and community. The concept of food sovereignty includes the right of people to have culturally appropriate foods but also their right to democratically

shape the food system to suit social and environmental values, which is difficult due to lack of information about the food system and corporate interference with the policy process (Anderson & Cook, 1999; Cachelin et al., 2019). The final outcome under the subcategory of human rights violations is the **right to benefit from scientific advances**. Much of the public funding for food systems research and technological advances focuses on cropping methods like genetically engineered monocrops and mechanization, which economically undermine mid-/small-scale and/or sustainable farmers (Anderson, 2008).

The following category, **loss of vibrant rural communities**, contains the subcategories of **decreased standard of living, population shifts**, and **negative social impacts of pollution**, which are driven in part by the food system. Trends like industrialization and urbanization shifted populations, especially young people, from rural to urban areas (Anderson, 2015). While population shifts are not by definition negative, and advances in mechanization have freed up individuals to pursue other jobs, both trends have directly and indirectly impacted rural areas. Rural areas have fewer job opportunities, and the industries that moved into rural areas tend to be less skilled work and have lower wages, like call centers, prisons, and factories (Anderson, 2008). The lower economic value and dispersed population in rural areas led to lower quality public services, like education and public transportation, and access to health care and retail services (Anderson, 2008; Bardenhagen et al., 2017; Hallam et al., 1993). The lack of well-paying jobs, and more localized environmental pollution, have made rural areas undesirable to many (Anderson, 2008; Hallam et al., 1993; Rossi & Garner, 2014). The “hollowing out” of rural areas impacts the social well-being of rural occupants and their ability or willingness to participate in community institutions (Anderson, 2008, 2015; Hallam et al., 1993; Rossi & Garner, 2014). Although the shift to urban centers has slowed considerably, rural populations are aging, have declining birth rates, and face inequalities in income, health outcomes, and resource and food distribution (Anderson, 2015).

Animal welfare is also a significant concern in the food system. There are many dimensions to an-

imal welfare, including living conditions, treatment, and genetic selection (Hoetzel, 2014). While there are arguments that killing living creatures can never be ethical, it is undeniable that industrial livestock production is inhumane. Selective breeding is used for traits like higher body weight or quicker egg production, but these changes can result in discomfort and loss of quality of life as, for example, broiler chickens have difficulty moving around with enlarged breast tissue (Hoetzel, 2014; Rossi & Garner, 2014). Efficiency-focused industrialization led to compact and mechanized rearing systems that rely on antimicrobials and growth hormones to maximize net yield and manage diseases in overcrowded and immunologically stressful conditions (Hoetzel, 2014; Rossi & Garner, 2014). These conditions restrict movement and generate mental distress for animals. Animals undergo other inhumane treatments during rearing, transportation, and processing in slaughterhouses, such as cutting off tails, beaks, and horns or scaling, skinning, or dismemberment, often without anesthesia or while animals are conscious (Hoetzel, 2014; Rossi & Garner, 2014).

The final subcategory is **corporate interference**. The food system is a highly industrialized, corporatized, and capitalized industry. Food is a commodity, a product with which to extract value through private ownership of land and the means of production (Elmes, 2018). The accumulation and abuse of power by firms in the food system are critiqued for several reasons, including the privatization of natural resources, unequal distribution of food, and the **manipulation of political, educational, and social systems** for financial gain. Corporations can privately fund research that provides them with advantages, which can, in turn, further wealth gaps or monopolies of large firms and violates the right to benefit fairly from scientific advances (Anderson, 2008; Elmes, 2018). Firms can also capture the policy process through political donations and pressures from lobbyists to, for example, roll back environmental legislation, weaken anti-trust laws, or influence the allocation of public research dollars (Elmes, 2018; Wallinga, 2009).

Consumers can be influenced through advertising, branding, labeling, and news in media and public spaces. The agro-food industry spends bil-

lions of dollars on marketing its products, which can be misleading or manipulative (Anderson, 2008; Elmes, 2018; Jaffe & Gertler, 2006; Shannon et al., 2015). Branding and labeling may also be used as a purposeful **lack of transparency**, which can make it difficult for consumers to understand the health or sustainability impacts of their food choices (Elmes, 2018). There is also a lack of transparency around agricultural practices, value chains, or brand ownership which removes the information and understanding of the food system necessary for consumers to make informed decisions in line with their values (Jaffe & Gertler, 2006). The disconnect of consumers from the production of food, and thus their awareness of the process and understanding of environmental and social externalities, is a form of **deskilling consumers** (Anderson, 2008; Jaffe & Gertler, 2006). The shift towards convenience foods, both through changing lifestyles and pressures from food firms, also deskilled consumers as they lose knowledge and skills about how to prepare food, nutrition and the health of foods, and freshness and spoilage (Elmes, 2018; Heller & Keoleian, 2003; Jaffe & Gertler, 2006). The deskilling of consumers affects health, participation in cultural traditions, and the ability of consumers to recognize problems and advocate for solutions within the food system (Jaffe & Gertler, 2006).

Risks to Food Security

The category **risks to food security** is in the socio-economic theme because a loss of food security would result in increased food insecurity or food access inequalities. The three specific outcomes discussed in the reviewed literature are the food system's **vulnerability to disruption, reliance on non-renewables, and reliance on transportation and trade**. The food system is a highly complicated set of interconnected systems that largely cannot operate alone. As such, the food system is vulnerable to disruption at many points and scales, such as natural disasters, climate change, freshwater depletion, emergent pests or diseases, or bioterrorism (Gilmore, 2004). The intensive use of non-renewable resources, such as fossil fuels and antibiotics, endangers the longevity of the food system as these resources will eventually run out (Blair & So-

bal, 2006; Conrad et al., 2018; Wallinga, 2009). Finally, the U.S. food system is highly dependent on national and international transportation and trade to provide adequate nutrition and diet diversity to its citizens (Gilmore, 2004; Koc & Dahlberg, 1999). In the event of halted or disturbed transportation and trade, much of the United States would not be able to provide adequate food to its citizens.

Economic Outcomes

While the ultimate negative outcomes of economic issues are most often the resulting social or health issues, such as damages to mental, social, or physical well-being, it can be useful to discuss economic outcomes as individual issues and precursors to further problems. In addition, many consider fair employment to be a human right. The subcategories in the economic outcome category are corporate consolidation, economic inequalities, and labor issues.

Corporate consolidation is rampant throughout the food system, like agrochemical or biotechnology companies that produce agricultural inputs, agrobusinesses that produce food, food processors, transportation and multinational trade firms, grocery retailers, and restaurants. In 2020, about 3% of farms generated 46% of the value of production (USDA ERS, 2021b). Both vertical and horizontal integration exist in the food system, which refers to integration either along the food system (i.e., a firm that produces, processes, and sells a product) or within a system stage (i.e., a firm that owns a large market share of a particular industry) respectively. The consolidation process is in a positive feedback loop with corporate interference, as the power gained through consolidation can be leveraged to influence the mechanisms that would decrease power, such as anti-trust legislation. The most obvious examples of consolidation are large food brands or retailers, but less consumer-facing aspects of the food system, such as wholesale and food distribution firms, are also consolidated (Elmes, 2018). Livestock slaughtering and packing is also a consolidated industry, with dramatic trends toward larger factories and fewer firms (MacDonald et al., 2000).

Corporate consolidation is not inherently negative, and this outcome refers specifically to the neg-

ative sustainability outcomes enabled by concentration that are pervasive in the U.S. food system. In isolation, consolidation presents a risk that if the needs and desires of a population change, entities with highly consolidated power can resist change, dictate conditions, and act out of line with social and environmental good. Corporate consolidation concentrates power which enables impactful decision-making but runs the risk of being abused (Anderson, 2008, 2015; Elmes, 2018). There is reduced competition, either through mergers, takeovers, or difficulties entering the market, which entrenches the control of consolidated firms and removes the ability of consumers to express values through purchasing decisions (Anderson, 2015; Elmes, 2018; Jaffe & Gertler, 2006). Consolidation also weakens local markets, which impacts local economies and takes wealth out of communities that they are unlikely to recoup (Anderson, 2015; Johnston et al., 2014; Yang & Suh, 2015).

The final two subcategories are **economic inequalities** and **labor issues**. Economic inequalities exist in the food system, including **income inequality** and **unequal healthcare spending**. Income inequality is a significant issue for farmers, food processing workers, and food service workers, as they do not benefit fairly from the wealth generated by the food system (Anderson, 2008; Heller & Keoleian, 2003; Horst & Marion, 2019; Wallinga, 2009). Agriculture and food-related industries contributed US\$1.055 trillion, or 5%, to the U.S. gross domestic product and 10.3% of employment, 19.7 million jobs, in 2020 (USDA Economic Research Service [ERS], 2021a). In addition, rural areas face higher income inequality and unemployment than their metropolitan counterparts (Hallam et al., 1993; Rossi & Garner, 2014). Unequal healthcare spending due to health burdens caused by the food system, mainly environmental pollution and occupational health effects, can be worsened by distributional inequalities of healthcare services, especially in non-metro areas, and low quality or lacking health insurance for food system employees (Blair & Sobal, 2006; Rossi & Garner, 2014; Wallinga, 2009).

Income inequality is a prominent issue due to the lack of living wages provided to food system employees (Anderson, 2008, 2015; Horst & Mar-

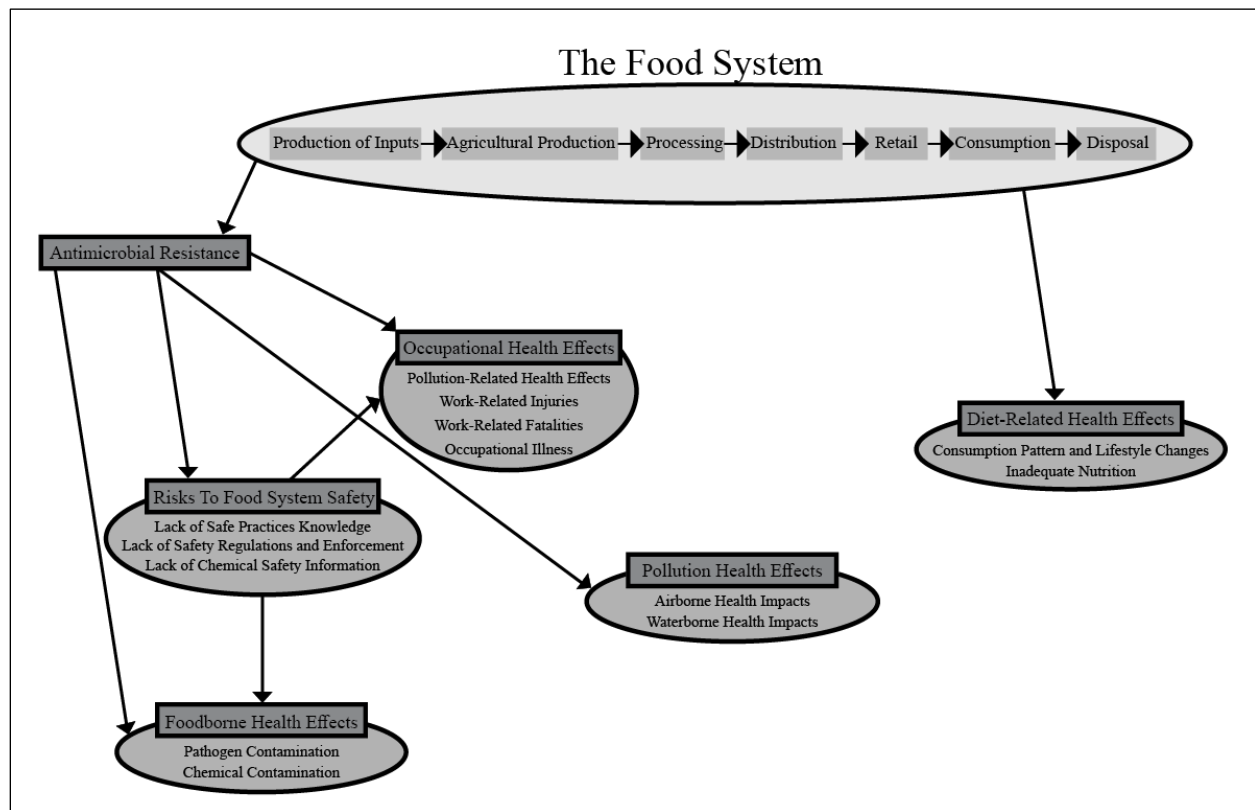
ion, 2019; Lo & Delwiche, 2015). **Decent living wages** are a cornerstone of fair employment (Anderson, 2008). Beyond lower wages, but contributing to economic inequalities, is **labor exploitation** (Elmes, 2018; Horst & Marion, 2019). This includes practices like unpaid labor, forced labor, wage theft, the inability to form labor unions, child labor, or other forms of exploiting vulnerable populations such as immigrants, and particularly undocumented workers (Anderson, 2008; Heller & Keoleian, 2003; Lo & Delwiche, 2015; Pilgeram, 2011). Suppressing labor unions, a practice that is aided by corporate consolidation and interference, is particularly harmful because it removes the ability of workers to advocate for themselves and improve aspects like wages or workplace health and safety (Anderson, 2008). Thus, while labor issues are linked to economic outcomes, they can also result in outcomes to physical and mental well-being.

Human Health Outcomes

The theme of human health outcomes covers the categories of health effects from environmental pollution, diet-related health effects, antimicrobial resistance, foodborne health effects, occupational health effects, and risks to food system safety (see Figure B3). **Environmental pollution** affects communities surrounding food system activities through two main pathways: **air and water**. Air pollution such as particulate matter and noxious gases can contribute to respiratory issues like asthma, while both inhaled or consumed agricultural chemicals, like pesticides, can contribute to health issues, such as cancer and neurologic diseases, or act as endocrine disruptors (Blair & Sobal, 2006; Rossi & Garner, 2014; Udeigwe et al., 2015; Wallinga, 2009). Pathogen pollutants in water can spread zoonotic diseases or other pathogens (Hallam et al., 1993; Rossi & Garner, 2014). In some cases, eutrophication events from nutrient pollution can create toxic algae blooms that render drinking water unpalatable.

Diet-related health effects are separated into the two categories of **consumption pattern and lifestyle changes** as well as **inadequate nutrition**. The interplay among consumption patterns, lifestyle choices, and individual physiology is com-

Figure B3. Human Health Outcomes Map of the U.S. Food System, Outcomes Derived from the Literature Review



plex and highly variable. While diet does not impact all people equally, it does have a significant impact on health. **Consumption patterns** in the United States shifted over time to include more processed calorie-dense, nutrient-poor foods, animal products, larger portion sizes, and more meals eaten outside of the home (Hickey & Ozbay, 2014; Rossi & Garner, 2014; Wallinga, 2009). Simultaneously, **lifestyles** have become more sedentary (Kearney, 2010). These factors have a direct link to obesity, which is a significant public health concern in the United States and is a contributor to other diet-related health issues like diabetes, cardiovascular disease, and hypertension (Blair & Sobal, 2006; Finley et al., 2017; Johnston et al., 2014; Neff et al., 2015; Nelson et al., 2016b). Dietary choices can influence a range of health concerns, from kidney disease to arthritis to cancer (Nelson et al., 2016b; Shannon et al., 2015). **Inadequate nutrition** includes malnutrition through a lack of sufficient food or micronutrient deficiencies (Johnston et al.,

2014; Merrigan et al., 2015; Rose et al., 2019; Wilkins et al., 2010).

A common influence on human health is foodborne contaminants like pathogens and chemicals. Pathogens can be present in animal products and transferred to produce through the application of animal manures or biosolids, irrigation with contaminated water, contamination of harvesting, transportation, and processing equipment, or cross-contamination with other foods (Chapman & Gunter, 2018; Fraser & Simmons, 2017; Gelting & Baloch, 2013). Common pathogens which lead to foodborne illness are *Salmonella*, norovirus, and *E. coli* (Chapman & Gunter, 2018; Rossi & Garner, 2014; Stuart & Worosz, 2012). It is also possible that foods could be contaminated with harmful chemicals along the food system (Fraser & Simmons, 2017; Maffini et al., 2017).

The next category, antimicrobial resistance, occurs when target organisms develop a resistance to an antimicrobial. This is a multifold concern in the

food system. From a public health perspective, antimicrobials, particularly antibiotics, are an important line of defense. The high rate of antibiotic usage on livestock speeds the development of resistance and transmittance to humans while decreasing the effectiveness of antibiotics in other situations (Wallinga, 2009). This is also an ongoing process for fungicides and pesticides, and while the latter does not as directly impact human health, there are significant implications for agricultural yield.

Similar to previous categories, **occupational health outcomes** occur throughout the food system and is broken into the subcategories of occupational illness, work-related injuries and fatalities, and occupational pollution-related health effects. **Occupational illnesses** can result from exposure to pathogens or zoonotic diseases, and food system workers have a higher risk of exposure than the general public (Neff et al., 2015; Rossi & Garner, 2014). Workers in the livestock rearing, slaughter, and processing supply chain are also at higher risk of being exposed to antimicrobial resistant bacteria (Rossi & Garner, 2014). Agriculture and food manufacturing has a high rate of **work-related injuries and fatalities** from accidents than other industries (Neff et al., 2015; Newman et al., 2015). Work-related injuries include acute and chronic injuries, such as chronic back pain or musculoskeletal problems from repetitive motions or long hours of standing (Newman et al., 2015). **Pollution** in the workplace can also contribute to health outcomes like respiratory issues from irritation to serious

conditions like respiratory diseases and asthma (Rossi & Garner, 2014; Shannon et al., 2015). Exposure to pesticides can result in a variety of health effects, including mortality from acute pesticide poisoning (Rossi & Garner, 2014; Wallinga, 2009). Occupational health effects can be worsened through lacking or improperly enforced health and safety practices.

The final category in human health outcomes is **risks to food safety**. Food safety is impacted by a **lack of knowledge on safe practices**, leading to mishandled food and increases in foodborne health outcomes, **lack of chemical safety information**, particularly the risks of multiple interacting chemicals, and a **lack of safety regulations and enforcement** (Chapman & Gunter, 2018; Maffini et al., 2017; Stuart & Worosz, 2012; Taylor & Hoffmann, 2001). Chemicals are notoriously understudied, as many have not been extensively tested and are still used as they are “generally recognized as safe” (GRAS) (Maffini et al., 2017). There are thousands of chemicals added to foods, which poses a challenge for responsible management by the FDA in isolation, much less when considering chronic low-level exposure, exposure for vulnerable populations like children, or multiple chemical interactions (Jaffe & Gertler, 2006; Maffini et al., 2017; Taylor & Hoffmann, 2001). Food safety and the safety of food system employees are further at risk due to lacking safety regulations, limited food and facility inspections, and a minimal response from firms to address safety concerns (Stuart & Worosz, 2012; Taylor & Hoffmann, 2001).

Appendix C. Raw Coding and Additive Coding

Outcome	Raw	Additive
Environmental Outcomes	11	41
Environmental Pollution	16	40
Air Pollution	5	26
Greenhouse Gas Emissions	23	23
Particulate Matter Air Pollution	2	2
Noxious Gases Air Pollution	3	3
Water Pollution	24	29
Water Nutrient Pollution	20	20
Water Pathogen Pollution	4	4
Water Chemical Pollution	9	9
Particulate Matter Water Pollution	8	8
Soil Pollution		7
Soil Chemical Pollution	5	5
Soil Pathogen Pollution	2	2
Soil Degradation	14	21
Soil Structure Degradation	2	2
Soil Composition Degradation	4	4
Erosion	14	14
Loss Of Biodiversity	13	18
Genetic Biodiversity	6	6
Community Biodiversity	5	5
Freshwater Depletion	24	24
Aquifer Depletion	7	7
Land-Use Changes	14	17
Deforestation	5	5
Desertification	2	2
Climate Change	17	17
Fishery Collapse	2	2
Waste Generation		18
Food Waste	15	15
Other Waste Generation	4	4
Resource Usage	9	21
Fossil Fuel Consumption	11	11
Input Resource	3	3
Other Energy Resource Usage	7	7

continued

Outcome	Raw	Additive
Socio-Economic Outcomes		37
Social Outcomes	5	31
Social Inequalities	3	14
Gender Inequalities	5	5
Racial And Ethnic Inequalities	3	3
Resource Inequalities	5	5
Food Access Inequalities	10	10
Food Insecurity	15	15
Human Rights Violations	5	10
Social And Cultural Rights	3	8
Right To Food	4	4
Right To Health	2	2
Right To Benefit From Scientific Advances	3	3
Loss Of Vibrant Rural Communities	5	11
Decreasing Standard Of Living	6	8
Population Shifts In Rural Areas	3	3
Social Outcomes Of Pollution	4	4
Corporate Interference	1	16
Influence On Educational Institutions	3	3
Influence On Media And Public Spaces	5	5
Influence On Governmental Processes	7	7
Control Over Production	8	8
Lack Of Transparency	4	4
Deskilling Of Consumers	10	10
Animal Welfare	5	5
Risks To Food Security	13	21
Vulnerability To Disruption	3	3
Reliance On Non-Renewables	9	9
Reliance On Transportation And Trade	2	2
Economic Outcomes		22
Corporate Consolidation	14	14
Economic Inequalities	5	18
Income Inequality	11	11
Unequal Healthcare Spending	4	4
Labor Issues	3	7
Lack Of Decent Living Wages	4	4
Labor Exploitation	6	6

continued

Outcome	Raw	Additive
Human Health Outcomes	5	43
Environmental Pollution Health Effects	4	11
Airborne Health Outcomes	7	7
Waterborne Health Outcomes	5	5
Diet-Related Health Effects	27	33
Consumption Pattern And Lifestyle Changes	14	26
Diabetes	11	11
Cardiovascular Disease	12	12
Obesity	17	17
Hypertension	4	4
Inadequate Nutrition	11	11
Antimicrobial Resistance	7	7
Foodborne Health Effects	1	18
Pathogen Contamination Of Food	12	12
Chemical Contamination Of Food	3	3
Occupational Health Effects	7	15
Occupational Illness	6	6
Work-Related Injuries	7	7
Work-Related Fatalities	6	6
Occupational Pollution-Related Health Effects	6	6
Risks To Food System Safety	14	14
Lack Of Safe Practices Knowledge	1	1
Lack Of Safety Regulations And Enforcement	2	2
Lack Of Chemical Safety Information	3	3
TOTAL	728	1,074

Appendix D. List of Reviewed Articles

Title	Citation
Improving Farm Animal Welfare: Is Evolution or Revolution Needed in Production Systems?	(Hoetzel, 2014)
Understanding Sustainable Diets: A Descriptive Analysis of the Determinants and Processes That Influence Diets and Their Impact on Health, Food Security, and Environmental Sustainability	(Johnston et al., 2014)
Soil Science and the Carbon Civilization	(Lal, 2007)
Roles of Rural Areas in Sustainable Food System Transformations	(Anderson, 2015)
Options for keeping the food system within environmental limits	(Springmann et al., 2018)
Leveraging foodways for health and justice	(Cachelin et al., 2019)
Food Sustainability in the Context of Human Behavior	(Morawicki & Díaz González, 2018)
Implications of leading crop production practices on environmental quality and human health	(Udeigwe et al., 2015)
Victual Vicissitudes: Consumer Deskillling and the (Gendered) Transformation of Food Systems	(Jaffe & Gertler, 2006)
The restructuring of food systems: Trends, research, and policy issues	(Koc & Dahlberg, 1999)
Luxus Consumption: Wasting Food Resources Through Overeating	(Blair & Sobal, 2006)
Racial, ethnic and gender inequities in farmland ownership and farming in the U.S.	(Horst & Marion, 2019)
Risk, anti-reflexivity, and ethical neutralization in industrial food processing	(Stuart & Worosz, 2012)
Industrial Farm Animal Production: A Comprehensive Moral Critique	(Rossi & Garner, 2014)
Relationship between food waste, diet quality, and environmental sustainability	(Conrad et al., 2018)
The Progressive Increase of Food Waste in America and Its Environmental Impact	(Hall, Guo, Dore, & Chow, 2009)
Rights-based food systems and the goals of food systems reform	(Anderson, 2008)
Characterizing Rural Food Access in Remote Areas	(Bardenhagen et al., 2017)
Local Food Systems Food Safety Concerns	(Chapman & Gunter, 2018)
Economic Inequality, Food Insecurity, and the Erosion of Equality of Capabilities in the United States	(Elmes, 2018)
The Evolution of the School Food and Farm to School Movement in the United States: Connecting Childhood Health, Farms, and Communities	(Feenstra & Ohmart, 2012)
Nutritional Sustainability: Aligning Priorities in Nutrition and public health with Agricultural Production	(Finley et al., 2017)
Food Safety Education: Training Farm Workers in the US Fresh Produce Sector	(Fraser & Simmons, 2017)
A systems analysis of irrigation water quality in environmental assessments related to foodborne outbreaks	(Gelting & Baloch, 2013)
US food safety under siege?	(Gilmore, 2004)
Sustainable Food and Agricultural Policies: A U.S. Perspective	(Hallam et al., 1993)
Assessing the sustainability of the US food system: a life cycle perspective	(Heller & Keoleian, 2003)
Food Waste in the United States: A contributing factor toward environmental instability	(Hickey & Ozbay, 2014)
The effects of the industrialization of US livestock agriculture on promoting sustainable production practices	(Hinrichs & Welsh, 2003)
Supporting Equitable Food Systems Through Food Assistance at Farmers' Markets	(Jones & Bhatia, 2011)

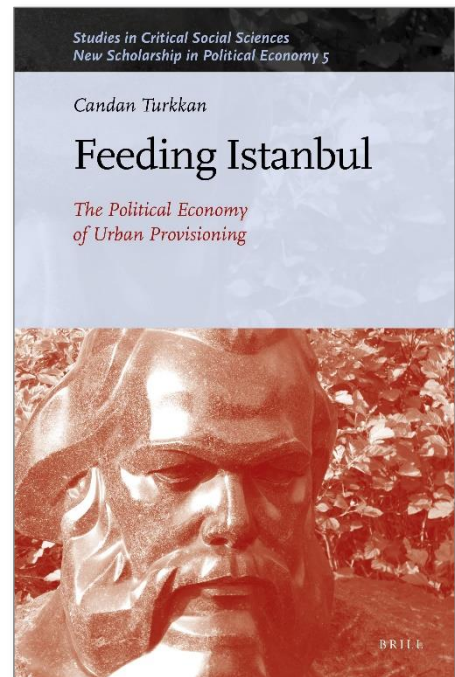
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Role of Veterinary Medicine in Public Health: Antibiotic Use in Food Animals and Humans and the Effect on Evolution of Antibacterial Resistance	(Lathers, 2001)
The Natural Resource Limits of US Agriculture	(Libby, 1993)
The Good Food Purchasing Policy: A tool to intertwine worker justice with a sustainable food system	(Lo & Delwiche, 2015)
We are what we eat: Regulatory gaps in the United States that put out health at risk	(Maffini et al., 2017)
Designing a sustainable diet	(Merrigan et al., 2015)
Cities' Role in Mitigating United States Food System Greenhouse Gas Emissions	(Mohareb et al., 2018)
A Food Systems Approach to Healthy Food and Agriculture Policy	(Neff et al., 2015)
Alignment of Healthy Dietary Patterns and Environmental Sustainability: A Systematic Review	(Nelson et al., 2016b)
Estimating Occupational Illness, Injury, and Mortality in Food Production in the United States: A Farm-to-Table Analysis	(Newman et al., 2015)
Energy Intensity of Agriculture and Food Systems	(Pelletier et al., 2011)
"The Only Thing That Isn't Sustainable...Is the Farmer": Social Sustainability and the Politics of Class among Pacific Northwest Farmers Engaged in Sustainable Farming	(Pilgeram, 2011)
Position of the Society for Nutrition Education and Behavior: The Importance of Including Environmental Sustainability in Dietary Guidance	(Rose et al., 2019)
Food system policy, public health, and human rights in the United States	(Shannon et al., 2015)
Redesigning Food Safety: Using Risk Analysis to Build a Better Food Safety System	(Taylor & Hoffmann, 2001)
Drivers of food waste and their implications for sustainable policy development	(Thyberg & Tonjes, 2016)
Sustainability of the US dairy industry	(von Keyserlingk et al., 2013)
Today's Food System: How Healthy Is It?	(Wallinga, 2009)
Beyond Eating Right: The Emergence of Civic Dietetics to Foster Health and Sustainability Through Food System Change	(Wilkins et al., 2010)
Changes in environmental impacts of major crops in the US	(Yang & Suh, 2015)

Five hundred years of urban food regimes in Istanbul

Review by Jennifer R. Shutek *
New York University

Review of *Feeding Istanbul: The Political Economy of Urban Provisioning*, by Candan Turkkan. (2021). Published by Brill. Available as hardcover, paperback, and eBook (PDF); 260 pages. Publisher's website: <https://brill.com/view/title/57002>



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Candan Turkkan's *Feeding Istanbul: The Political Economy of Urban Provisioning* begins with an intimate anecdote about her grandmother's experiences of hunger during the Second World War and the centrality of bread in her family. She reflects on the fragility of food systems that belie appearances of food abundance in urban areas and the lasting psychological impacts of hunger. This personal story introduces the focus of the book: the political economies of urban food provisioning in Istanbul.

Feeding Istanbul chronologically discusses food

provisioning in Istanbul from the 16th century to the present. Turkkan uses an impressive range of sources, including secondary historical materials, archival documents and collections, and ethnographic research, to suggest that Istanbul has experienced three food regimes, each with unique relationships between the central authority, economics, and food supplies.

The first food regime, spanning the mid-15th century through the late 19th century, was the *urban food provisioning* regime, in which the sultanate intervened heavily to ensure sufficient provisioning of food for Istanbulites. The second, the *codependent provisioning* regime (from the mid-19th century to the 1980s), began with the signing of trade treaties between the Sublime Porte and European powers. It led to a mixed food provisioning approach in which the sultan intervened occasionally while

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allowing markets to determine imports and pricing. Finally, the *urban food supply chain* regime, beginning in the mid-1980s, has seen food provisioning shift to private actors who aimed to accumulate capital through provisioning.

Turkkan's chapter on the urban food provisioning regime adds to scholarship on Ottoman economic incorporation into global supply chains by considering what large-scale economic, structural, and political changes meant for people in the intimate sphere of food provisioning and consumption. Turkkan's ambitious *longue durée* approach encompasses over five hundred years of Istanbul's history. In this food regime, Turkkan argues, the sultan's *kudret* (goodness and legitimacy) correlated with his ability to provide food for his subjects.

The third and fourth chapters on codependent provisioning during the first half of the 20th century use Carl Schmitt's theory of "friends" and "enemies." Turkkan argues that centralizing states use hunger as a form of biopower; these states ensure that their friends are well-placed in food systems, while their enemies may face food scarcity and even starvation. In this food regime, the "politics of death thus becomes the new right to kill, and the market, the new medium of sovereign violence" (p. 124). While this theory is compelling, Turkkan's arguments would have been strengthened by specific examples of the Turkish state using hunger as a form of violence and control against its "enemies."

The final chapters discuss instability and increasing disparities in the urban food supply chain food regime in Istanbul. Turkkan characterizes this food regime, *inter alia*, by the liberalization of economic policies and a decreased focus on import substitution, paired with an increasing focus on export-oriented growth. In the urban food supply chain regime, Istanbulites have become increasingly dependent on global supply chains, and the rights of citizens were in some ways "reduced to commodities and services" that they purchased (p. 182).

The book's most substantial chapter, "Feeding Global Istanbul," uses fieldwork and semi-structured interviews alongside secondary materials. Turkkan outlines major shifts that resulted from


economic liberalization, including rural-to-urban migration, massive increases in urban density, and the skyrocketing of informal housing. One particularly compelling aspect discussed in this chapter merited more attention: the story of the relationship between urbanism and food provisioning. Turkkan shows how the relocation of the sultanate from Topkapı to Dolmabahçe in the 19th century, urban-to-rural migration through the 19th and 20th centuries, and the construction of informal housing in the 20th century eventually led to the disappearance of *bostans* and community gardens that had provided fresh produce to Istanbulites. This fascinating story complements similar research on other cities (especially in the field of radical geography) and could have provided a granular example across the three food regimes illustrating how macro-economic shifts, governmental changes, and urban planning affected urban food production and consumption.

Turkkan concludes by gesturing to the future, suggesting that three major areas of activity will determine Istanbul's provisioning apparatus: changes in population and demographics, continuing expansion of international supermarkets, and the growth of alternative food networks (AFNs) and countermovements (p. 197). The presence of AFNs that cross socioeconomic status suggests widespread dissatisfaction with and resistance to global supply chains and may, in part, shape the future of supply chains in Istanbul and other global cities (since, as Turkkan notes, AFNs are not unique to Istanbul).

While *Feeding Istanbul* makes impressive contributions to theories and case studies of urban food provisioning, it could have been more accessible to wider academic audiences and nonspecialists had Turkkan provided brief explanations of various places, institutions, and organizations. This would have facilitated more cross-regional and interdisciplinary comparative work. For example, the Committee of Union and Progress, central to Turkkan's description and analysis of large-scale changes to Istanbul's food provisioning networks in the early 20th century, is not introduced or explained. Additionally, several scholars who have made critical contributions to understandings of food provisioning in Ottoman Istanbul through focusing on

imarets (public soup kitchens), including Amy Singer and Nina Ergin, were not cited in *Feeding Istanbul*. A focus on charity and emergency food assistance would have widened the scope of Turkkan's descriptions of food access and security.

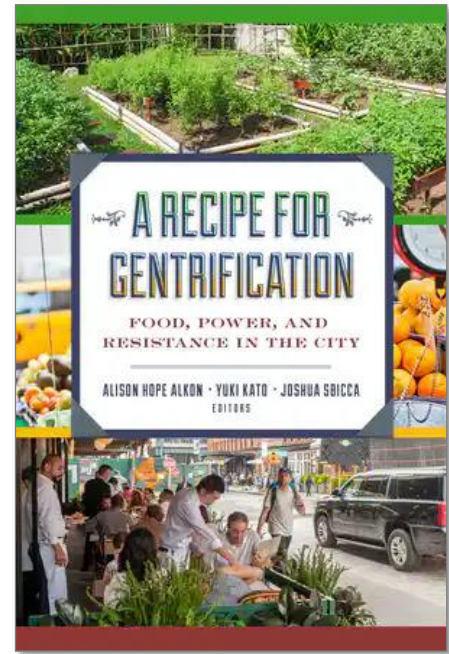
Throughout this engaging book, Turkkan effectively demonstrates that "food and provisioning were and are among the foundational constituents in the relationship between political communities and their central authorities" (p. 222). *Feeding Istanbul* will be of particular interest to scholars of

Ottoman and Turkish history. It would also make a valuable contribution to research and syllabi focusing on economic and social histories of the Ottoman Empire and Turkey, complementing work by scholars including Suraya Faroqhi, Amy Singer, and Donald Quataert. Additionally, this book adds much-needed perspectives on food systems and urban supply chains in non-western contexts and provides an excellent model of how to carry out nuanced research that blends archival data with ethnographic research. 

Change is inevitable, but is gentrification?

Review by Megan Marshall *
 New York University

Review of *A Recipe for Gentrification: Food, Power, and Resistance in the City*, edited by Alison Hope Alkon, Yuki Kato, and Joshua Sbicca. (2021). Published by NYU Press. Available as hardcover, paperback, and eBook; 384 pages. Publisher’s website: <https://nyupress.org/9781479811373/a-recipe-for-gentrification/>



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A Recipe for Gentrification is a masterful exploration of the complex relationship between intent and impact at the intersection of alternative food systems and urban development. The goal of this edited volume is to unpack the ways in which food systems can both drive and resist gentrification. The introduction lays out the many nuanced drivers of both processes. For instance, well-intentioned efforts to increase food access in a neighborhood can be an early initiator of gentrification. And urban agriculture and public

green spaces are frequently co-opted for development efforts. At its best, food empowers a strong cultural sense of self and fuels efforts for sovereignty in marginalized communities. This volume aids in exploring these entangled effects through what may be simplified as a study of impact vs. intent.

The volume is divided into four sections: food retail, alternative food systems, contesting gentrification, and community-based strategies. The 19 contributors include lifelong community activists and nonprofit leaders, and leading academics working in fields ranging from sociology to geography and agricultural economics.

The first chapter, “Dining Downtown,” lays out what is now a common argument in the food studies literature. Drawing on the work of the French sociologist and social theorist known for

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A Social Critique of the Judgement of Taste, Pierre Bourdieu, this chapter explores how an individual's desire for authenticity and good taste can become a driver of gentrification. In the following chapter, Nina Marten builds upon this argument by looking critically at "savior entrepreneurs" who establish themselves in neighborhoods, dangerously believing there is "nothing there," thus erasing the history of a neighborhood and its independent businesses that might have met the needs of long-term residents for decades before gentrification begins. The "savior entrepreneurs" capitalize on the momentum new residents provide and open new businesses to meet their needs under the guise of generating equal opportunity and experiences for long-term residents. The second and third chapters in the opening section discuss the idea of a singular food item or type of food gentrifying in the evolution of taste, notably through a case study of the local food market in Oklahoma in the early 2000s.


The section "Ripe for Growth" presents a series of essential readings that analyze urban agriculture and community garden programs across the United States. Each chapter explores at least one set of competing interests—long-term residents and newcomers, organizers and city officials, developers and community-garden leaders—and how these interests either clash ideologically or use one another for political capital. These chapters contain valuable considerations for nonprofit program leaders working on food systems initiatives, by stressing the importance of centering long-term residents and reminding newcomers to support community-led change.

The chapters "Uneven Alliances" and "Growing Resistance" explore case studies of early gentrifying neighborhoods from across the U.S. and weaves together individual and community-led efforts to resist gentrification. Notable chapters in this section include an exploration of "ethical gentrification" and social enterprise claims with Save on Meats, a Downtown Eastside neighborhood business in Vancouver. Puerto Ricans in Chicago have flipped the script utilizing food to build a connection to culture, particularly amongst the

younger generation by teaching teens about the history of Puerto Rican cuisine. In "Community Gardens and Gentrification in New York City," the authors offer a key lesson: for community gardens to survive, and ultimately thrive in the hands of the neighborhood, civic connections beyond food systems, such as relationships with city officials, schools, and nonprofits not related to food, are essential.

In the book's conclusion, Alkon, Kato, and Sbicca present "development without displacement" and centering those first displaced in alternative food system development as critical principles for resisting gentrification. The authors also recognize a need for additional research to understand how food systems influence urban development strategies. Ultimately, this dense volume makes the case for food systems scholarship as an essential lens for the critique of urban development practices.

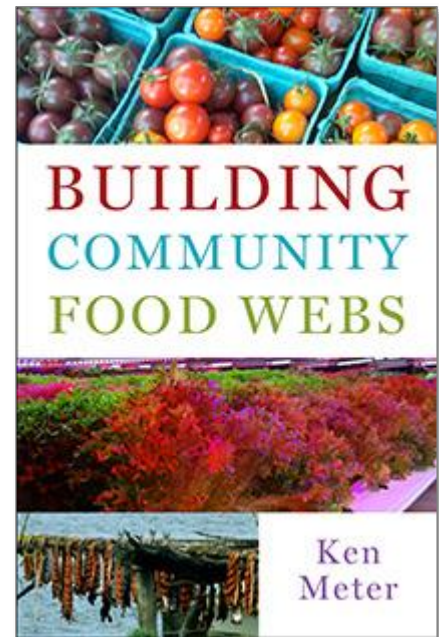
In my own scholarly networks, I frequently hear or speak the phrase "Don't let the perfect be the enemy of the good." In reviewing this book, I hoped to find research that does not shy away from offering solutions. Urban agriculture and alternative food systems are essential as this country faces population growth, rapid economic and physical development of cities, and a climate crisis. Emily Becker and Nathan McClintock offer a key lesson in their case study of the Portland Fruit Tree Project (PFTP) in the chapter "The Cost of Low-Hanging Fruit." They offer an essential reminder to non-profit leaders and neighborhood newcomers alike: to be in community, fostering a genuine togetherness and sense of belonging, is a constant and essential negotiation. PFTP found success after turmoil and displacement by returning responsibility to long-term residents and away from the non-profit.

A Recipe for Gentrification should be foundational reading for any sociology or food studies scholar and anyone pursuing a career in urban development or real estate. The collection should also be required reading for anyone interested in urban agriculture or community gardens professionally or as a volunteer. 

Relationship networks are the key to strong local food economies

Review by Matthew Hoffman *
 University of Southern Maine

Review of *Building Community Food Webs*, by Ken Meter. (2021). Published by Island Press. Available as paperback and eBook; 304 pages. Publisher’s website, which includes a study guide: <https://islandpress.org/books/building-community-food-webs>



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Many readers of this journal are familiar with Ken Meter,¹ whose five decades of working with local community groups, state governments, and tribal nations in the United States to assess, plan, and build local and regional food systems have made him one of the most experienced people doing this kind of work. His pioneering economic analyses of local food systems and the

regional food system plans he has written can be found on the website of the Crossroads Resource Center. This much-awaited book is something different. It weaves together his years of experience in a collection of case studies that are grouped according to themes by chapter and which serve in this fashion to present some overarching lessons from Meter’s career.

Chapter 1 is a valuable stand-alone chapter that argues that “the prevailing food system systematically extracts wealth from rural and urban communities alike” (p. 3). In this chapter, which sets the stage for the rest of the book, he tells the story of how the number of farms in the U.S. has dwindled while the remaining farms have gotten larger and

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¹ Mr. Meter served as a JAFSCD columnist from 2010 to 2015. His columns can be found at <https://www.foodsystemsjournal.org/index.php/fsj/search/index?query=&authors=ken+meter>

switched from growing food for their communities to growing commodities for processing and export. In 15 charts, he shows us how net cash income for farmers has stagnated even as productivity has skyrocketed. Whereas at the beginning of the 20th century, farmers earned 40 cents for every dollar of food sold, today they earn 1 cent on every dollar. Graphs depicting the steep rise in production expenses demonstrate how the wealth created by farming goes not only to processors and distributors, but increasingly to providers of farm inputs. Meter also makes a valuable point about farm debt. He tells how many farmers in the early 20th century borrowed from other farmers, rather than from banks, and how most commercial lenders were based in the local community. This meant that interest payments at that time were reinvested in the local farming community, rather than being siphoned off to other parts of the economy elsewhere in the country. Rising production costs in the late 20th century—driven by inputs procured from distant sources—and the increasing role of outside lenders in local markets created massive outflows of wealth from rural communities.

Meter is clear that our current extractive system is a product of public policy and that we need new policy to reverse the situation. In the absence of such policy, however, community-level initiatives have become our best hope, and it is such initiatives that are the focus of chapters 2–10.

Chapter 2 tells the story of how a regional food system is being rebuilt in Montana, a state that has gone from producing 68% of its own food in the 1940s to less than 10% today. An expanding farmers' cooperative and a food enterprise center for processing local fruit and vegetable crops into higher-value products are but two examples of how Montana has been building a local food system via "a culture of cooperation." Chapters 3–5 also tell the stories of communities trying to cope with the consequences of export-oriented agriculture. Chapter 3 takes us to Hawaii, which was once self-sufficient in food production at a similar population level to its current one. Today, in the wake of plantation agriculture, the state relies heavily on imports and Supplemental Nutrition Assistance Program (SNAP—formerly food stamps) benefits. Here, a public health official played an important


bridging role, connecting local farmers to the emergency food system via the creation of processing facilities. Chapter 5 takes us to Indiana, where commercial food processors were unwilling to buy from local farmers. These farmers formed a network and established a food hub in partnership with a local food bank that had recently invested in new processing facilities. In chapter 6, a food processing facility in Ohio serves a network of independent food businesses. In chapter 7, we see how rapid urban growth in Phoenix, Arizona, brought high land prices that made it hard for farmers to operate in proximity to a potentially lucrative market. Farmer isolation and lack of public support make this a negative case study that can be contrasted with chapters 8 and 9 (Colorado and Minnesota), in which local government support and public planning have contributed to the protection of farmland. Chapter 10 describes collaborative networks of farmers—in one case a vertically integrated network, including processing and marketing—that have built strong relationships with their customers.

Chapters 11 and 12 lead us toward the conclusion, explaining that it is not the food miles that are important when we talk about local food, but the relationships. The quick chapter summaries I present here of *what* has happened in various places risk missing the key point of *how* these things have happened—stories of relationship-building. Meter tells how "effective community food webs build market power for local farmers," giving them "stronger options than being price-takers in impersonal commodity markets" (p. 251). They do this by connecting farmers to communities of people—not only consumers, but also local charities and public officials—who care about supporting local agriculture. From a local development perspective, policymakers have reason to care not only about particular farms, but also about promoting a small-scale farm structure that will support a vibrant local economy and heightened civic engagement.

The work of Thomas Lyson, surprisingly, is not mentioned, but Meter's book is a perfect complement to *Civic Agriculture* (Lyson, 2004), and the two would pair well in the classroom. *Building Community Food Webs* shows us civic agriculture in practice, making clear the need for "civic" in two

senses: the need for effective local political engagement, and the need for farmers and their customers to build trust via dense networks of social engagement. Although many of the case studies involve the creation of local infrastructure, the repeated message is that building local food economies is not primarily an infrastructure project, but rather about building foundational relationships.

The book does not contain lessons on how to do the kind of economic analysis for which Meter is well known, nor does it present a recipe for building local food systems, but it is an excellent primer on how local food systems can stanch the

flow of wealth from rural communities and the importance of approaching these systems as social rather than logistical. Chapter 1, which explains the need for local food systems, is an excellent piece of work that deserves to be included on any food systems syllabus. Each of the chapters begins with a summary and ends with a paragraph linking it to the next chapter, making the text very easy for any audience to follow. I recommend this book for students, nonprofit staff, and public officials, as well as for anyone working on a USDA Regional Food System Partnerships grant application. 

Reference

Lyson, T. A. (2004). *Civic agriculture: Reconnecting farm, food, and community*. University Press of New England.