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*On our cover:* Karla Berger, front office assistant at the Brandon Community Health Center in Brandon, Vermont, helps distribute Farmacy Project shares to patients of the clinic. In 2021, the Farmacy Project had 200 members who received 15 weeks of local produce at no cost, grown by farms in the Rutland county area, purchased, bagged by volunteers, and distributed from the Vermont Farmers Food Center, a nonprofit dedicated to strengthening the local food system. The program had eight distribution sites located all across the county, including five of the community health centers in the Rutland region. The Farmacy Project is an innovative program building relationships between community health and local agriculture and creating a new preventative healthcare model in the heart of Vermont. See the article in this issue: [Empowerment, love, and connection: Lessons learned from the Farmacy Project, a food-is-medicine program in Rutland, Vermont.](#)

*Photo by Miriam Berkson, University of Vermont student intern for the Farmacy Project*



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## IN THIS ISSUE DUNCAN HILCHEY

### Food and community wellness



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In this open call issue, we offer a salmagundi of papers focusing on how communities are linking local food production to improved health and wellness. Depicting this theme, the cover of our fall 2021 issue features the **Farmacy Project**, a community health program that buys produces from local farms and makes it available for free to individuals referred by local healthcare professionals. In the cover photo, Karla Berger with the Brandon (Vermont) Community Health Center helps distribute Farmacy Project shares to clinic patients. Grassroots innovations such as these—linking local small farmers to residents in need of fresh food to improve their health—are part of a critical, although limited, civil society response to an American food system. The food choices of U.S. citizens remain largely controlled by powerful private interests in the industrial agriculture and allied food processing and distribution industries. Without countervailing public food system planning, policy, and governance (including a rational, nonpolitical farm bill), the American food system will continue to reflect neither the long-term interests of *real* family farmers nor the public at large.

Starting out this issue is **John Ikerd's** Economic Pamphleteer column, entitled *The EAT-Lancet Commission Report: A solution or perpetuation of the problem?* In it, Ikerd challenges the report's co-authors, an elite panel of 38 experts from around the world who argue “sustainable intensification” (i.e., growing more via an increase of technological inputs) is the solution to an unhealthy, inequitable, and environmentally destructive global food system. Triggering Ikerd's ire, in particular, is the panel's questioning of the practical value of agroecology while also ignoring the likelihood that powerful businesses that occupy a hegemonic position above producers and consumers would continue to do so under a global policy of sustainable intensification.

Following Ikerd, we have three insightful commentaries that put a light on both the promise and the limitations of a civil society approach to the wicked problems in the food system. First up is *Empowerment, love, and connection: Lessons learned from the Farmacy Project, a food-is-medicine program in Rutland, Vermont* by **Emma Hileman**. Flipping that script just a bit, **Lanika Sanders** encourages us to be careful in making charity the centerpiece of our response to hunger in *Avoiding the humanitarian trap: The 'Nobelization' of food aid*. And finally,

in *Impact of COVID-19 on Pennsylvania farm revenue: Looking back at the 2020 season*, **Miriam Seidel, Christopher D. Murakami, J. Franklin Egan, Jasmine D. Pope, and Chia-Lin Tsai** give us a snapshot of how a sample of farmers fared during the first year of the pandemic, with farmers in the study surprisingly reporting no significant benefit from the modest federal relief programs.

We next offer 12 papers covering a plethora of food system-based community development topics, touching on our theme of food and community wellness.

**Jairus Rossi and Timothy Woods** highlight our issue theme in *Incentivizing wellness through community supported agriculture: Reflections on shareholder impacts of an employer-based CSA voucher program*, in which the authors find that CSA participation did impact behaviors, including reporting less diet-related medical claims.

Next, we jump “the pond” to London, England, with *Procurement and delivery of food at holiday provision clubs* by **Emily Mann, Clara Widdison, Zeibeda Sattar, and Margaret Anne Defeyer**. The authors present the results of a survey of holiday club leaders and find that extending the provision of free meals to children during the holidays when school is out is an important piece of the food safety net in the city, even while they have significant logistical and financial challenges.

In *Cultivating Powerful Participation: Reflections from a food justice and facilitation learning experience*, **Jamie Bain, Noelle Harden, Shirley Nordrum, and Ren Olive** present a reflective essay on their experience effectively building the facilitation skills of community food justice leaders.

**Erika Berglund, Neva Hassanein, Paul Lachapelle, and Caroline Stephens** then offer *Advancing food democracy: The potential and limits of food policy positions in local government* in which they interview 11 of 19 known paid local government food policy professionals in the U.S. They find these professionals bullish about the future of food systems work, though somewhat challenged and in need of an expanded communications network such as the Center for Livable Future’s Food Policy Network.

The next set of papers in this issue focuses more on producer perspectives of food systems. In *Exploring the needs of urban producers in a rural state: A qualitative needs assessment*, **Catherine E. Sanders, Casandra K. Cox, Leslie D. Edgar, Donna L. Graham, and Amanda G. Philyaw Perez** find that, while Cooperative Extension in Arkansas is generally available to assist urban food producers, the organization is more oriented to commodity producers and presently not well equipped to advance the needs of small-scale growers who are more likely to use alternative production practices.

**Anika Rice and Zachary A. Goldberg** follow this with an event ethnography approach to provide an in-depth exploration into Jewish agroecological knowledge and issues conducted during a gathering of Jewish farmers and nonfarmers in *‘Harvesting a participatory movement’: Initial participatory action research with the Jewish Farmer Network*.

Continuing the farmer knowledge theme, **Eric S. Bendfeldt, Maureen McGonagle, and Kim L. Niewolny** interview a group of small farmers in Virginia to more fully appreciate the complex nature of local agricultural knowledge and experience. They conclude that more sophisticated and nuanced qualitative approaches to engaging with small farmers are required for effective extension and education in *Rethinking farmer knowledge from soil to plate through narrative inquiry: An agroecological food systems perspective*.

Using a social entrepreneurship framework, **Darin Saul, Soren Newman, and Christy Dearien** explore the effects of COVID-19 on a diverse group of food hubs in *Capital in context: Funding U.S. Inland Northwest food hub development before and during COVID-19*. In contrast to Seidel et al.’s Pennsylvania farmers (above), the authors find surprising resilience in the food hubs in their study, especially of those able to take advantage of federal COVID-19 relief programs.

Next, **Michelle Miller** sheds light on the unequal access of food systems data and information among supply chain stakeholders, especially during crises, and calls for the democratization of critical knowledge through public investment in data collection and analysis in her policy analysis, *Big data, information asymmetry, and food supply chain management for resilience*.

In our final peer-reviewed paper, *Implementing sustainable food forests: Extracting success factors through a cross-case comparison*, **Stefanie Albrecht and Arnim Wiek** take a deep dive into seven cases of food forests in multiple




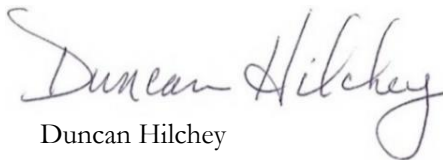
countries, and provide recommendations for their management informed by this research.

In our final paper, further complicating our understanding of the efficacy of federal support during COVID-19 is the research by **Iryna Demko**, **Ana Claudia Sant’Anna**, and **Kathleen (Chyi-Lyi) Liang**. In their paper, *An overview of the Paycheck Protection Program (PPP) loans and implications for agricultural enterprise recovery from COVID-19*, the authors found the benefits varied considerably due to the lack of clarity and consistency in the program’s implementation.

We finish the issue with four book reviews. **Innocent Awasom** reviews *Food Gardens for a Changing World*, by Daniela Soleri, David A. Cleveland, and Steven A. Smith; **Bruno Borsari** reviews *Breaking Boundaries: The Science of Our Planet*, by Johan Rockström and Owen Gaffney; **Krishnendu Ray** reviews the *Routledge Handbook of Food as a Commons*, edited by Jose Luis Vivero-Pol, Tomaso Ferrando, Olivier De Schutter, and Ugo Mattei; and **Molly D. Anderson** reviews the *Routledge Handbook of Sustainable and Regenerative Food Systems*, edited by Jessica Duncan, Michael Carolan, and Johannes S. C. Wiskerke.

With this issue, we start our second decade of publishing JAFSCD! The food movement is blessed with many activist scholars, professionals, and practitioners working every day to make the world a bit more equitable and resilient. JAFSCD has been fortunate—especially during these difficult times—to have many of these activists involved as authors, editors, editorial board members, and volunteers.

Despite the continuing struggle with COVID-19, for racial justice, and around climate issues and the growing imbalance between the haves and have nots, we, the JAFSCD staff and representatives of the JAFSCD Shareholder Consortium, wish our readers and their loved ones happy and healthy holidays, and a hope for a better year in 2022. 



Duncan Hilchey  
Publisher and editor in chief





## THE ECONOMIC PAMPHLETEER JOHN IKERD

### The EAT-Lancet Commission Report: A solution or perpetuation of the problem?

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In 2019, the international EAT-Lancet Commission proposed a global strategy for “healthy diets from sustainable food systems” (EAT-Lancet Commission, 2019, “Exec. Summary,” para. 1). The authors claimed theirs was “the first attempt to set universal scientific targets for the food system that apply to all people and the planet” (EAT, n.d., p. 5). Within the first three months of its release, the report generated over 5,800 media articles in 118 countries and over a million shares on social media (Stockholm Resilience Center, 2019). The report has been praised primarily by

advocates of animal welfare and vegetarian and vegan diets. It has been criticized primarily for its draconian restrictions on the consumption of animal products and its lack of affordability and acceptability to many of those in greatest need of healthy foods.

The Commission acknowledged that the current global agri-food system is not sustainable, noting that “Food systems have the potential to nurture human health and support environmental sustainability; however, they are currently threatening both” (p. 442). The Commission’s “defini-

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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>*

tion of sustainable food production stays within safe planetary boundaries for six environmental processes that together regulate the state of the Earth system” (p. 485). Numerical boundaries were developed for climate change, land-use systems change, freshwater use, biodiversity loss, and interference with the nitrogen and phosphorus cycle. However, by focusing on the need for global food security as well as ecological sustainability, the Commission implicitly accepts the 1987 United Nations Brundtland Commission’s definition of sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, n.d.).

The Commission repeated the *conventional wisdom* that “increasing crop yields and improving production practices have contributed to reductions in hunger, improved life expectancy, falling infant and child mortality rates, and decreased global poverty” (p. 449). However, it acknowledged the failure of current agri-food systems to provide nutritional food security:

“Although global food production of calories has kept pace with population growth, more than 820 million people have insufficient food and many more consume low-quality diets that cause micronutrient deficiencies and contribute to a substantial rise in the incidence of diet-related obesity and diet-related non-communicable diseases, including coronary heart disease, stroke, and diabetes” (p. 447).

Its proposed strategy for sustainable production was to develop and implement new, sophisticated production technologies that would allow today’s industrial farming systems to produce still more while using fewer resources, polluting less, and wasting less—which it called “sustainable intensification” (p. 449). The Commission suggests that governments should somehow make sustainable intensive technologies accessible to small-scale producers. As is clearly evident in the

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United States, however, smaller sustainable intensive farms would be forced to “scale up” in size to provide the dependable supplies of uniform commodities needed to accommodate large-scale processing and distribution systems (Miller, 2021).

There is little to suggest that sustainable intensification would be significantly different from today’s conventional industrial farming systems, other than increases in production efficiency. Increasing efficiency of resource use was also the primary means proposed for reducing wastes and pollution. Regardless of efficiency, industrial systems are extractive and exploitative systems of

production that degrade and deplete the natural and human resources that provide their ultimate sources of productivity. While this characteristic is commonly acknowledged for industrial manufacturing, it is largely ignored for industrial agriculture. Sustainable intensive agriculture might slow the process of degradation, but the productive capacity of agricultural resources eventually would be depleted or permanently damaged.

The EAT-*Lancet* Commission’s proposed strategies for addressing nutritional food security relied primarily on better consumer information and education. The diets proposed by the Commission—which limit or exclude red meats and rely heavily on alternative sources of protein and on fruits and vegetables—have been widely accepted, at least in general, as means of improving both planetary and human health (Ramsing et al., 2021). However, there has been considerable skepticism regarding whether consumers would willingly accept the strict dietary requirements of the EAT-*Lancet* diet or whether it would be appropriate in many parts of the world (Bloch, 2019).

Regardless, the Commission mistakenly assumed that today’s unhealthy food consumption patterns reflect the free choices of sovereign consumers in competitive markets and that food production patterns would change to accommodate



changes in consumer preferences. However, once markets are allowed to move away from the essential conditions for effective economic competition, as is clearly the case for today's global agri-food systems, there is no assurance that changes in consumer preferences will be accommodated by changes in production. A lack of enforcement of antitrust laws in the United States has allowed large corporate food processors and retailers to gain control of the agri-food system all the way from production to consumption (Hendrickson et al., 2020).

The only choices left for most consumers are to select from whatever food retailers choose to offer for sale—wherever, however, and at whatever price they choose to sell. The only

choices left for most producers is to produce whatever products processors choose to buy—wherever, however, and at whatever price they choose to pay. Consumption and production alternatives to these choices are very limited, and not accessible or affordable to the people in the greatest need, nor profitable for most independent producers of healthy foods (Hendrickson et al., 2020). There is no mention in the *EAT-Lancet* report of a strategy for restoring effective competition in the global agri-food sector.

The Commission also failed to acknowledge that food insecurity is not caused by a lack of agricultural production. Global agriculture already produces more than enough food to meet the basic food needs of everyone in the world (Holt-Giménez et al., 2012). This is clearly true in the U.S., where the percentage of food-insecure people has been greater during the 2000s than during the 1960s, despite the scale of production increases over that period (Ikerd, 2015). The vast majority of hungry people

in the world are hungry because they are poor and cannot afford the costs for healthy food in local or global markets. As decades of unsustainable agricultural intensification have clearly demonstrated, increasing agricultural production is not a logical strategy for nutritional food security.

Near the end of the report, the Commission recognized that “biodiversity conservation is essential to maintain ecosystem services that support agriculture. . . Sharing space for biodiversity in production landscapes is necessary to secure biodiversity’s contribution to food production, including pollination, pest control, carbon capture, and regulating water quality” (*EAT-Lancet* Commission, 2019, p. 481). The only significant proposal made in this regard is to

require that 10% of “production landscapes” be designated for “sharing space” for biodiversity and conservation purposes. This suggests that 90% of production landscapes would be occupied by large-scale, specialized, industrial farming systems.

Finally, the *EAT-Lancet* report states that “A healthy diet should optimise health, defined broadly by WHO as being a state of complete physical, mental, and social well-being, and not just absence of disease” (*EAT-Lancet* Commission, 2019, p. 453). However, the proposed strategies would offer nothing to improve the physical, mental, or social well-being of consumers left to the mercy of corporately controlled food markets—and certainly

not of the farm families inevitably displaced by sustainable intensification.

The *EAT-Lancet* report dismisses agroecology and other alternatives to sustainable intensification as not being “scalable” and thus inadequate and impractical (*EAT-Lancet* Commission, 2019). Agroecological farms function in harmony with nature and rely on healthy natural ecosystems,

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rather than synthetic fertilizers and pesticides, to sustain their productivity (Ikerd, 2018, 2019). Numerous highly credible global studies have shown that agroecological farming systems are capable of producing enough healthful food for a growing global population without compromising ecological, social, or economic integrity (International Panel of Experts on Sustainability-Food [IPES-Food], 2016).

Food sovereignty is a global movement that emerged specifically to address the problems inherent in today's corporately controlled, industrial agri-food systems (Ikerd, 2015). Food sovereignty proclaims that access to enough nutritious, sustainably produced food is a basic human right. It also claims the right of all people to choose their own foods and local systems of food production.

The diets of people in food sovereign communities reflect the food preferences of the people and the sustainable capacity of the agroecosystems upon which they depend for their food. The proportions of animal and vegetable products in diets reflect the correspondence of people's food preferences with nature's productive capacities. The physical, social, and mental health

of people in food sovereign communities reflect the health of the soils, plants, animals, and natural agroecosystem they choose to depend on for their food. Agroecology and food sovereignty are logical agri-food systems for the future that cannot be dismissed in any credible scientific study of agri-food sustainability.

Many probably share the skepticism of the EAT-Lancet Commission concerning the possibility of using the principles of agroecology and food sovereignty for guidance in developing a new, sustainable global food system. However, few envisioned the possibility of a transition from the small independent family farms and local food systems of earlier times to the corporately controlled global agri-food system of today. But it happened, largely because of new industrial technologies and changes in farm- and food-sector government policies. In the U.S., it happened over a period of about 50 years—between the 1950s and 1990s. New post-industrial farm and food system technologies and government policies could just as easily create a post-industrial agri-food system. The EAT-Lancet report suggests that we should just *do industrial better*. 

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## COMMENTARY

# Empowerment, love, and connection: Lessons learned from the Pharmacy Project, a food-is-medicine program in Rutland, Vermont

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Senior high school student volunteer Tyler Carroll walks out to the car that has pulled up along the back of the renovated former iron works building, the site of the Vermont Farmers Food Center, in downtown Rutland, Vermont. Tyler says, “Hi! Can I get your name, please?” Tyler then takes one bag from the table covered with bagged farm shares and puts one in the customer’s back seat, thanking them as they drive off with their local goods.

The members are here to receive their produce prescription through the Pharmacy Project, a program that provides 150 individuals in the county with 15 weeks of fresh produce grown exclusively by local Rutland county farms. Finishing up its sixth year in 2021, the program has become a standard in the area, working with healthcare providers who identify individuals with chronic diet-related health conditions who could benefit from a “food as medicine” produce share. This project intersects community health and local agriculture. Many, although not all, members may be food insecure as well, as reflected in the 68% of members this year who were food insecure based on the results of the two-item food insecurity questionnaire of the U.S. Household Food Security Survey.<sup>1</sup>

Since 2015, the program has worked with community partners to provide nutrition education for members while investing over US\$150,000 back into the local agricultural economy. Pharmacy is one of the most established programs at the Vermont Farmers Food Center, a 501(c)(3) nonprofit whose mission is to increase access to and availability of locally produced food in the Rutland region through

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<sup>1</sup> <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/survey-tools/>

education, expanding markets and market access, aggregation, and distribution of locally produced and value-added agricultural products.

For Mike and Karen King, moving up to Rutland County, Vermont, from Massachusetts changed their lives. You can regularly see Mike, 59, and Karen, 61, traveling to a nearby town to check out a new hiking trail or see Mike zooming around on an ebike rented from the local recreation department. But when they moved to the area just a few years ago, Mike, who is diabetic, was told by his doctor that he needed to go on four new medications. Karen was using a wheelchair because she was unable to walk for more than a few minutes. What helped them change was the presence of dedicated community programs, including ours. Introduced to this food-as-medicine program by their doctor, Mike is down 60 lbs. and only takes one medication. Karen has lost 70 lbs. and now walks and hikes regularly using only a cane for support. Their story resonates with many of our other program members, and during the tumultuous times created by COVID-19, it is stories like these that keep our staff going.

Running the Farmacy Project in 2020–2021 has had its tough moments, much like all nonprofit programs navigating a year defined by a pandemic and social isolation. Community programs thrive on just that—community—so how do you continue to form community when getting together is the very thing you aren't able to do? The answer is simply that you do your best.

With the help of many partnerships built the year before through a partnership with the Rutland Free Clinic and their outreach to rural communities, we were able to expand the Farmacy Project to four new locations in the outer reaches of the county. With the help of dedicated volunteers, we reached over 428 people in 150 households from July through December 2020. Although we had to adjust our in-person pick-up process, instead running a curbside service and not offering our normal cooking classes and demos, we still made what connections we could with our participants. What we missed this year had nothing to do with the vegetables—we were still able to purchase over 18,000 pounds of produce from our farm partners—but what we couldn't as easily cultivate were the things not visibly seen but the most important components of our program: empowerment, love, and connection.


Mike and Karen wouldn't be where they are today in their journey to health if it weren't for themselves. Their success didn't just appear because we did the work for them with our program, instead, their self-empowerment was fostered each week when they received a bag of produce with new and interesting vegetables and tried the recipes given in every share. According to Mike, "I try to go in with an open mind and try everything. I was never raised on vegetables. Learning all these things I did was an eye opener. We had a delicious butternut squash soup last fall and I was shocked at how good it was. Since then we've learned how to use a whole butternut squash and some people think it's not a big deal ... but it is if you've never eaten them before." This also led them to seek out other local wellness programs focused on exercise like Come Alive Outside, which "inspires collaborative community systems that create the awareness, intention, and opportunity for people to live healthier lives outside." That empowerment has always been a crucial part of the success of our food-as-medicine program. Another participant, the primary caregiver to her developmentally challenged granddaughter, remarked last year, "it's very empowering when I look in the bag and go 'oh my god I can use this for her,'" sharing that she learned to add greens to smoothies to increase the nutrition in her granddaughter's diet.

And when it comes to love there isn't a better story than that of Frank Wallace and Dolly Cole, who met during their first week of becoming members of the Farmacy Project back in 2015 and now are a couple living together and sharing their wealth of knowledge about the power of food as medicine. But it's not only romantic love that has been cultivated by our program; love for community has been as well. During a focus group held with members at the farm center prior to the pandemic, Frank remarked, "My feeling is that's what programs like this is all about, helping each other out, you know it's being sociable, it's having somebody during the week to say hey, how ya doin'? And you know it makes a



difference in your life.” Though the program focuses on the power of local, healthy, and whole foods, it is clear from stories like these that it means even more to those who dedicate themselves and follow through every week to simply show up.

What programs like the Farmacy Project do well is create a link between farm viability and public health while weaving together educational and cultural experiences, something that only people-centered, place-based programming can provide. Food thus becomes not only a tool but also a catalyst for communitywide social change. This brings us to the third and maybe most important outcome for Farmacy: connection. During the first five years of the program and even after the most memorable sixth year, connections have been made that strengthen all the participating parties, including farmers, volunteers, and members. Whether it is a community member delivering a share to a homebound individual, or a family learning how to make sauerkraut during a cooking class, or a member sharing a favorite recipe that goes around in the weekly newsletter, or our volunteers greeting someone by name every week as they pull up in their car with masks on, the connections deepen and become more than just handing out healthy and nutritious food. Local food-as-medicine programs (of which there are others in the state) foster these connections and even have led our members to know the farmers who are working to help nourish their bodies. Frank Wallace appreciates the connections he has made with the farm partners, saying, “It makes me feel good to talk to them [farmers] and get to know them and let them know that their vegetables are helping a lot.”

It is our hope as we move forward to maintain, if not expand, these elements of empowerment, love, and connection found so effortlessly in our program and continue to use local food as the powerful tool for social change that it can be and should be around the nation and in our world. 

For more information on the Farmacy Project, a program of the Vermont Farmers Food Center, visit [https://www.vermontfarmersfoodcenter.org/farmacy\\_project](https://www.vermontfarmersfoodcenter.org/farmacy_project)





## COMMENTARY

# Avoiding the humanitarian trap: The ‘Nobelization’ of food aid

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## Abstract

Despite the significant role that hunger relief has played in global emergency response efforts throughout much of the last century—notably showcased with the 2015 naming of ‘Zero Hunger’ as the second Sustainable Development Goal, and more recently when the World Food Program was awarded the 2020 Nobel Peace Prize—significant hunger and malnutrition remain. Concerningly, past crises have demonstrated the potential for hunger relief efforts, particularly the provisioning of food aid, to undermine the ability of Global South countries and communities to recovery fully from shocks. This commentary takes a critical look at the role of food aid during extended crises and presents several thoughts for how aid agencies and Global North governments can continue to work toward Zero Hunger while simultaneously supporting Global South economies and cultures.

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## Keywords

Food Aid, Emergency Relief, COVID-19, Global South, Pandemic, Sustainable Development, Capacity-Building

## Introduction

In October 2020, the Nobel Peace Prize was awarded to the World Food Programme (WFP) for its role in providing food aid to countries under duress due to COVID-19 and other emergencies (Nobel Prize Outreach AB, 2020a). In the words of David Beasley, executive director of WFP, the organization’s recognition acts as “a reminder that food security, peace and stability go together” (Hookway, 2020, para. 23). As the prize has been awarded for food systems work only twice before—once in 1949 to Lord Boyd Orr, “Father of the Food and Agriculture Organization” (Nobel Prize Outreach AB, 2021a) and in 1970 to Norman Borlaug, “Father of the Green Revolution” (Nobel Prize Outreach AB, 2021b)—WFP’s award is instrumental in communicating

the capacity of food systems work to enable healthy, resilient communities.

WFP was established in 1961 as an experiment in providing emergency hunger relief through the United Nations (UN), and has since helped forge a central place for food aid in humanitarian efforts (WFP, 2021b). The organization has prioritized the UN's second Sustainable Development Goal (SDG), 'Zero Hunger,' which was adopted in 2015 with the goal of eradicating hunger and malnutrition by 2030 (United Nations, n.d.). Emergency food provision is WFP's primary tool of action, and hunger eradication is used as a lever to achieve targets laid forth by other SDGs, such as ending poverty and acting against a rapidly changing climate. As a result of its efforts, WFP has become the largest humanitarian organization working to address hunger and food insecurity in the world (WFP, 2021a). In 2019, WFP assisted nearly 100 million people suffering from acute hunger and food insecurity in 88 countries, underscoring the invaluable role the organization plays in times of acute hunger and conflict.

### **The Politics and Challenges of Food Aid as a Humanitarian Gesture**

Despite WFP's notable successes, significant hunger remains. An estimated 690 million people—8.9% of the world population—were undernourished in 2019, and with global hunger on the rise, ending hunger by 2030 becomes an ever more distant reality (Food and Agriculture Organization of the United Nations [FAO], International Fund for Agricultural Development [IFAD], UNICEF, WFP, & World Health Organization [WHO], 2020). Examining the food sovereignty challenges of local communities, driven partly by the structural and systemic inequities characteristic of 'food apartheid,' offers an even more striking image of how distant the end of hunger remains, and how inadequate current international aid strategies have proven to be in meeting this ambitious goal (Bradley & Galt, 2014).

Consider, for instance, the role of emergency rice provision in the decimation of Haiti's economy. To bolster the stagnant American farming economy of the 1980s, U.S. policymakers put pressure on Haiti to reduce tariffs, using the 1985

U.S. farm bill to flood Haiti's markets with subsidized U.S. rice in the name of food aid (Armand, 2019). Haiti was forced to halt subsidies for domestic rice production, leaving Haitian rice producers to compete with large foreign producers in what was essentially a losing battle. Local markets were destroyed, and farmers, who could no longer make a living producing rice, were thrust into urban areas searching for work (Matheson Miller, 2014). Slums grew quickly and chaotically, and their unstable construction and overcrowded conditions contributed to a massive loss of life when Haiti was hit by a magnitude 7.0 earthquake in 2010 (DesRoches et al., 2011).

Out of an abundance of benevolence, post-earthquake humanitarian aid efforts inundated Haiti with even more food aid, trickling in for years after the event (Matheson Miller, 2014). Today, a full 80% of Haiti's rice is imported, and just recently Haiti's food insecurity was upgraded from 'alarming' to 'serious' on the Global Hunger Index (Cochrane et al., 2016; Concern Worldwide & Welthungerhilfe, 2021). Further, nutritionally dense domestic grains, which have traditionally composed a significant portion of the Haitian diet, have been displaced by cheap foreign rice. This unbalancing of the traditional Haitian diet has contributed to the growing double burden of malnutrition seen among many Global South countries, characterized by undernutrition coexisting with overnutrition (Popkin et al., 2020).

The role that food aid plays in undermining local economies calls into question the function of such aid in extended crises. Although aid in the face of immediate food shortages is arguably essential, such as immediately after an earthquake, when does food aid become an imposition in the face of emergencies that drag on for months? This question is even more challenging when considering crises that require the creation of economic lags, the current COVID-19 pandemic providing one example. Preliminary data suggests that by the end of 2020, COVID-19 had increased the total number of undernourished people by between 83 and 132 million individuals (FAO et al., 2020). Certainly action must be taken to reduce such adversity during this crisis. That said, considering that the pandemic will

likely continue for months, are aid agencies such as WFP doing a disservice to target countries by continuing to provide food aid?

Looking critically at the potential repercussions of food aid opens discourses about the role of humanitarian aid, both in general and of food aid in particular. Supporting, recognizing, and prioritizing global food issues, such as those pursued by WFP and other global organizations, are crucial in the advancement of worldwide health and equity. However, these measures must occur alongside the support, recognition, and prioritization of local food systems efforts—from food production to waste management—in villages, towns, and municipalities, especially those in Global South countries.

### **Some Thoughts about Thinking Globally but Acting Locally to Secure Our Common Food Future**

Imperatively, international aid agencies should focus on providing hunger relief without undermining local food economies. By incorporating the lessons learned from past errors into present-day protocols, hunger relief tools can be altered to ensure the promotion of long-term food security in target populations. Three ideas for the way forward are laid out below.


1. Aid agencies should, to the extent possible, source food first from small farms local to the target area. In short-term situations where a lack of production is the main barrier to food security (for instance, during periods of extreme flooding or drought, leading to acute undernourishment), the agencies should source food from global markets, while working with local producers and municipalities to provide the planning and financial support necessary to wean localities off such aid as soon as possible. This approach recognizes that strengthening local-level food production is paramount to agricultural sustainability (a central target of SDG 2), but that uplifting all food system sectors is necessary to prevent local and global food aid production networks from engendering negative externalities. These include labor and food security inequities for women (Botreau &

Cohen, 2019), addressed in SDG 10, 'Reduced Inequalities,' and SDG 5, 'Gender Equality,' facilitated by SDG 8, 'Decent Work and Economic Growth,' or the generation of unmanaged food waste (Cochrane et al., 2016), prevented via SDG 12, 'Responsible Consumption and Production.' Corresponding with its local food procurement policy, WFP itself has sourced a significant amount of "locally grown commodities" in recent years, procuring 33% of its purchases locally in 2018 (WFP, 2019, p. 7). In the wake of significant economic detriment to small enterprises by COVID-19, WFP should prioritize an expansion of these activities.

2. If the barriers to food security are financial in nature, organizations should first provide monetary aid and capacity-building services aimed directly at the food system sector experiencing inefficiency. For instance, the installation of solar irrigation pumps in Bangladesh has allowed rural farming communities to halve their irrigation costs (Ahmed Mahbub, 2016), and in Guatemala, the establishment of e-commerce platforms and other technologies has allowed growers to streamline sales of surplus produce (De Ferrari Piazza et al., 2020). Investment in resilient infrastructure thus equates to investment in a community's ability to adapt and progress in the face of challenges, as outlined in SDG 9, 'Industries, Innovation and Infrastructure.' Along with direct investment into food system activities, investment into housing, transportation, and healthcare indirectly bolsters food security, providing a platform to boost physical and financial access to food.
3. As an alternative to provisioning communities with specific projects and foods, global organizations can use cash-based transfers to equip households with the financial capacity to meet their own needs. In the Somali region of Ethiopia, for instance, the FAO has provided unconditional cash transfers (UCTs) to approximately 4,500 pastoral households affected by drought (FAO, 2020a). The program has not only enabled the beneficiaries to purchase food and

other necessary supplies as a replacement for lost agricultural yield, but also to invest in agricultural inputs that boost farm production. Similarly, aid organizations can provide vouchers that are redeemable for certain food-related goods and services, a strategy that has proven particularly useful in boosting food production and nutritional security. One example is the FAO's cash-for-seeds program in South Sudan, which provides vulnerable families each with 5,000 South Sudanese pounds (US\$30) to purchase seeds and other necessary agricultural inputs at local markets (FAO, 2020b). In addition to supporting local businesses and agricultural prosperity, this conditional cash transfer (CCT) program allows farmers autonomy to act upon traditional agricultural insight, enabling SDG 11, 'Sustainable Cities and Communities.' The use of CCTs and UCTs has been popularized by the 2019 Nobel Prize for Economics winners, Esther Duflo, Michael

Kreme, and Abhijit Banerjee, who argue that cash transfer programs are effective policy mechanisms to reduce poverty in global South countries (Banerjee et al., 2017; Nobel Prize Outreach AB, 2020b).

Through capacity-building activities, mindful food procurement, and household empowerment, the proposed solutions enlist alternative and intersectional methods of tackling emergency relief. By addressing food system challenges in tandem with the roots of these challenges, aid organizations hold the power to advance global outcomes toward eliminating poverty (SDG 1), ultimately reducing acute and long-term hardship. 

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## SHAREHOLDER COMMENTARY

# Impact of COVID-19 on Pennsylvania farm revenue: Looking back at the 2020 season

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## Abstract

Initial forecasts predicted severe financial losses for small and midsized farmers as the COVID-19 pandemic disrupted usual market channels nationwide. Early reports both confirmed and challenged these fears, as some farmers could not find new markets while others established or expanded their direct-to-consumer sales to replace their lost outlets. To understand the impact of the pandemic on Pennsylvania farmers across the entire 2020 growing season, Chatham University and Pasa Sustainable

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## Correction Notice

Data related to the Farmer to Family Food Box Program (FFFBP) was included by accident in the initial article published online. The fourth paragraph of the Results section has been corrected to delete data related to the FFFBP. In addition, the Broad Leib et al. (2021) reference was deleted from the text and References list. No other edits were made in the article.

Agriculture<sup>1</sup> surveyed farmers and performed interviews with a subset of these farmers. The anonymous survey was distributed by Pennsylvania-based farm organizations to their constituents, predominantly through email. Just under half the farmers (42%) reported a loss of revenue, while over half (58%) reported either no change or an increase in revenue in 2020. The scale of these changes varied greatly. We also found that vegetable farmers fared slightly better than livestock/eggs/dairy farmers; those with a higher pre-COVID revenue did better than those with a lower pre-COVID revenue; and farms that were able to increase direct-to-consumer sales maintained or increased their total revenues. Participation in state and federal relief programs varied and appeared to have no significant effect on farmers' final 2020 revenue. Farmers' responses to the open-ended survey questions demonstrated that the weather, a lack of infrastructure to support small and midsized producers, and consumers' lack of support for a regional food system were major challenges before COVID. Without meaningful policy changes, these challenges will persist beyond the pandemic's resolution.

## Keywords

COVID-19, Pandemic, Agriculture, Regional Food Systems, Relief Programs, Direct to Consumer, Adaptation

## Introduction

According to national headlines, the COVID-19 pandemic wreaked havoc on farmers during the 2020 season. However, this picture is not the full story, as many farmers made successful adaptations during the height of the pandemic by increasing direct-to-consumer (DTC) sales. For example, in South Carolina, COVID-19 triggered an increase in demand for local meats (Richards & Vassalos, 2021), and media outlets nationwide reported that CSA memberships were booming and replacing lost revenue for some farmers early in the pandemic (Ricker & Kardas-Nelson, 2020; Shilton, 2020; Westervelt, 2020). The USDA's Economic Research Service (ERS) review of 2020 confirmed an 11.1% increase in spending by consumers on direct purchases from farmers, manufacturers, and wholesalers (Zeballos & Sinclair, 2021). On the other hand, COVID-19 added to serious pre-existing issues faced by farmers. As USDA Chief Economist Robert Johansson (2021) argued, farmers were already going through financial hardships due to the challenges posed by a global food system focused on large-scale suppliers and the worsening effects of climate change when the pandemic added new challenges.

This commentary summarizes results from a full-year retrospective survey of the effects of COVID-19 on farm finances, the success of any adaptation measures, and the impacts of federal, state, and local relief funds. Our research team includes faculty from Chatham University and staff from the Pasa Sustainable Agriculture, a nonprofit that provides training and technical support for Pennsylvania farmers. We hope that these findings will be useful in informing policies, programs, and initiatives to support and protect farmers in the face of continuing and future major disruptions. A full report of our findings will be published at a later date.

## Methods

Pennsylvania (PA) is home to over 53,000 farms and is a national leader in a range of agricultural products and DTC sales. The link to an anonymous survey was emailed between February and March 2021 to over 20,000 farmers by 11 farm-related organizations, including the PA Farm Bureau and Pasa Sus-

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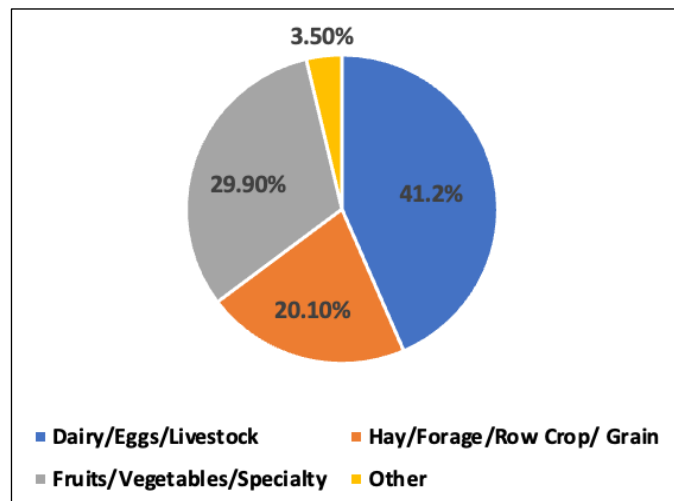
<sup>1</sup> Pasa Sustainable Agriculture is a nonprofit organization that provides training, research, and technical services to farmers in Pennsylvania and throughout the mid-Atlantic region. See more at <https://pasafarming.org/>

tainable Agriculture. Additionally, Chatham University’s postal service mailed paper surveys to 200 farmers in February. Surveys were accepted through April 26, 2021. Responses from 318 farmer owner-operators from across all regions of PA met our inclusion criteria of having a farm located in Pennsylvania and meeting the USDA (2021) definition of a farm (US\$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year). Figure 1 reflects the survey respondents’ predominant output.

## Results

Farmers’ responses to our survey reveal a mixed picture of the impacts of COVID-19 on Pennsylvania farm revenues in 2020. Less than half of farmers (42%) reported a negative revenue change, 37% a positive change, and 21% no change in revenue due to the pandemic compared to previous years. This data

**Figure 1. Predominant Farm Output of Surveyed Pennsylvania Farmers**



**Table 1. Farmer-Estimated Change of Revenue in 2020 Due to the COVID-19 Pandemic**

	Frequency <sup>a</sup>	Percent
>50% loss	27	9.1%
26–50% loss	18	6.0%
11–25% loss	51	17.1%
1–10% loss	29	9.7%
No change	63	21.1%
1–10% increase	54	18.1%
11–25% increase	34	11.4%
26–50% increase	17	5.7%
>50% increase	5	1.7%
<b>Total</b>	<b>298</b>	<b>100.0%</b>

<sup>a</sup> 298 farmers of the total 318 survey participants responded to this question.

was self-reported and based on the farmers’ estimate of their farm revenue during 2020. The degree of the negative and positive financial impact varied greatly, as shown in Table 1.

Several farm characteristics appeared to influence financial outcomes significantly. The fruit/vegetable/specialty farmers fared better than the livestock/eggs/dairy farmers, with the former reporting on average “no change” in revenue, and the latter reporting a 1–10% revenue loss ( $p=.006$ ). Additionally, Figure 2 shows that farmers who reported lower pre-COVID revenue were slightly more likely to report a COVID-related loss of revenue ( $p=.003$ ).

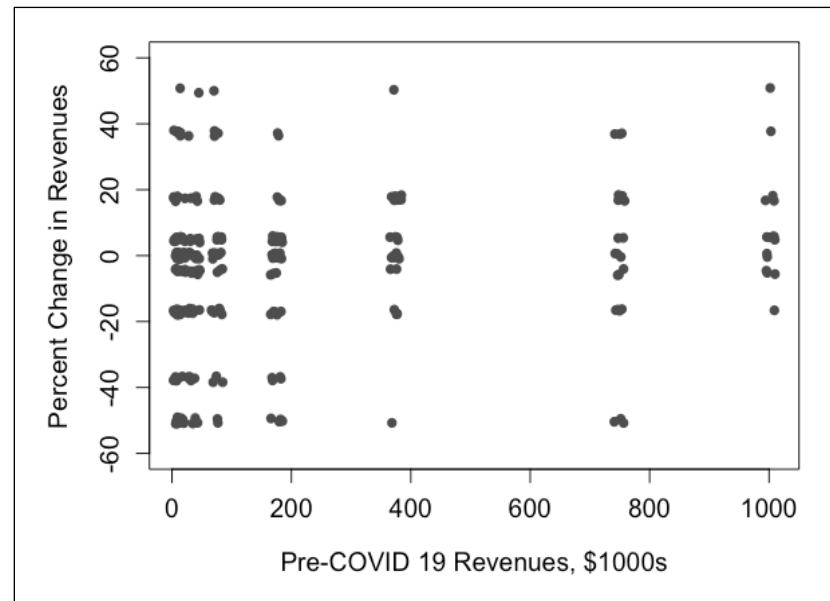
DTC sales such as through community supported agriculture (CSA), farmers markets, and/or on-farm sales positively supported revenue during the pandemic. Farmers who did *no* DTC sales reported significantly greater losses than those who maintained or increased their DTC sales ( $p<.001$ ). Similarly, farmers who enhanced two or more online promotion practices, such as a business website, marketing emails, Facebook page, or Twitter, reported a significantly higher gain than those who made no enhancements ( $p=.020$ ). Farmers also highlighted DTC sales in an open-ended question about their plans. One farmer responded, “Hoping to sell more freezer beef direct to the consumer.” Another noted, “Working to

increase yield for pick your own in anticipation of another year of strong demand.” Another farmer’s comment summed up many views about the future: “More direct to consumer sales and marketing.”

In an effort to lessen the pandemic’s financial impact on farmers, the federal government, as well as state and local entities, offered a variety of relief programs. Of the 299 farmers who responded to the survey’s relief-program question, almost one half ( $n=147$ , 49%) participated, and slightly more than one half ( $n=152$ , 51%) did not. More than a quarter (29%) of relief program participants participated in two or more programs. The Coronavirus Food Assistance Program (CFAP) had the most participation (50 farmers); the Payroll Protection Program had 39, the Small Business Administration program had 12, and the Economic Injury Disaster Loan had nine. Eighteen other relief programs had between one and four farmers participating. The Carolina Farm Stewardship Association conducted a similar survey in April to early May 2020 (before CFAP was offered) and concluded that relief funding did not serve local producers and instead was geared to higher-volume commodity farmers (McReynolds, 2020). Our survey found a

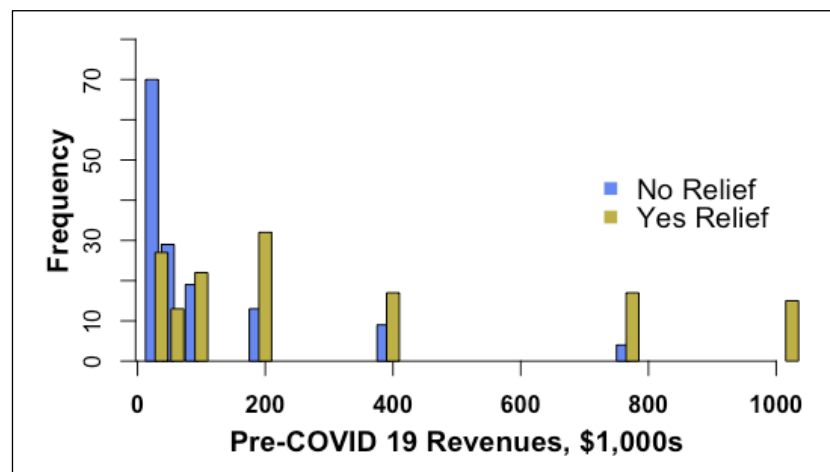
significant difference between relief program participation and pre-COVID revenue. As shown in Figure 3, farmers who reported a higher pre-COVID revenue were significantly more likely to participate in

**Figure 2. Correlation Between Typical Pre-COVID-19 Annual Revenues and Percent Change in Annual Revenues for 2020<sup>a</sup>**



<sup>a</sup> While data are displayed on continuous axes for ease of interpretation, our survey presented farmers with response options corresponding to ranges of pre-COVID-19 revenues from US\$1,000 to over US\$1,000,000 and percent change in revenues from >50% loss to >50% increase. Farms are plotted at the midpoint of their range groups, with some random jitter added to help differentiate individual farms.

**Figure 3. Typical Pre-COVID-19 Annual Revenues for Pennsylvania Farms that Received Federal Relief Funds and Farms That Did Not<sup>a</sup>**



<sup>a</sup> While revenue data are displayed on a continuous axis for ease of interpretation, our survey presented farmers with response options corresponding to ranges of pre-COVID-19 revenues from US\$1,000 to over US\$1,000,000. Farms are plotted at the midpoint of their revenue range group.

relief programs ( $p < .001$ ), while very small farmers with revenues less than US\$100,000 were more likely not to participate in relief programs.

Very small farmers may have chosen not to participate because the farm was not their primary source of income. Alternatively, as Econsult Solutions, Inc. (2021) found, small farmers had difficulty accessing public funds because they often lacked connections to loans and grant providers. In fact, 27% ( $n=41$ ) of respondents who did not participate in relief stated they could not determine if they were eligible for a program. Farms that participated in relief program(s) had, on average, similar changes in revenue compared to farms that did not accept relief payments ( $p = .834$ ).


## Conclusion

While our survey focused on COVID-19, farmers' responses to open-ended questions demonstrated that the pandemic was far from their only challenge. The long-recognized inadequate infrastructure to support small and midscale producers hurt many farmers in our survey. For example, farmers commented about challenges with animal processing. One noted that "[I] can't get product butchered for retail, therefore can't sell at Farmer Markets." Another shared, "I don't need marketing help. I need the government [to] enable me to get my animals processed so I can sell them by the cut/pound." Climate change was a major problem: "Weather cause[d] more trouble than COVID-19. Poor weather lowered production for early-season crops. This reduce[d] sales more than COVID." Another farmer highlighted the lack of rain and explained, "Specific to Western PA, we experienced a drought during summer of 2020 that basically cut yields in half which was a double wammy [*sic*] in addition to the pandemic market disruptions."

Finally, although the pandemic's disruptions sent many consumers to their local farmers, small and mid-sized farmers wondered if that trend would continue post-pandemic:

I think a lot of attention that was given to local food systems early in the pandemic has waned, which is a shame. . . . The general public needs to imagine what food resiliency in our region could look like and then use political will and purchasing power to make it happen.

While the economic results of the pandemic's first full year did not pan out as badly for some farmers as the worst predictions, several lessons from the survey stand out and can help point to useful changes in future years. DTC sales were a good solution for many vegetable and other fresh produce farmers, and therefore support for farmers to expand more of their operations to direct sales may help build resiliency for future disruptions. Relief program funds were generally accessed by farms at the scale of family-businesses (US\$100,000 to US\$500,000 in annual revenues) and less utilized by very small-scale farms (<US\$100,000). We will further explore relief program participation in a future publication.

As noted above, the pandemic itself had a variable impact on Pennsylvania farmers in 2020 but also exposed the vulnerabilities and needs of producers that existed prior to COVID-19. Ongoing issues with extreme weather and lack of access to processing and distribution infrastructure challenged farmers pre-pandemic and, without meaningful policy actions, will continue after the pandemic ebbs. 

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tested the survey are Art King, Harvest Valley Farms, and Todd Wilson, Tiny Seed Farm. Many PA farm organizations shared the survey with their members.

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# Incentivizing wellness through community supported agriculture: Reflections on shareholder impacts of an employer-based CSA voucher program

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## Abstract

Community supported agriculture (CSA) programs are emerging as popular consumer options for produce acquisition. While many researchers have discussed the impacts of CSA on economies, communities, and the environment, others are interested in documenting how produce-based CSA shapes health. In this paper, we evaluate whether and to what extent CSA incentive programs, funded by diverse employer groups in central Kentucky 2015–2018, impact shareholder wellness. To evaluate impact, we use two distinct types of data: we compare shareholders' perceived frequency of food lifestyle behaviors from pre- and post-season sur-

veys, and we examine anonymized medical claims from a subset of these participants to determine if CSA participation impacts short-run usage of medical services. From survey data, we observed statistically significant changes in some shareholder behaviors. For instance, CSA shareholders perceived that they consumed vegetable salads more often while decreasing their intake of processed foods and snacks. From medical claims data, shareholders are billed less in diet-related medical claims following CSA participation compared to a control group from the same employer organization. In short, we find that CSA is generally beneficial and participants view their experience as providing motivation to reshape their relationship to food. We conclude by offering strategies for institutions and organizations to effectively develop and support CSA incentive programs.

## Keywords

Community Supported Agriculture, CSA Incentive Programs, Food Lifestyle Behaviors

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## Introduction

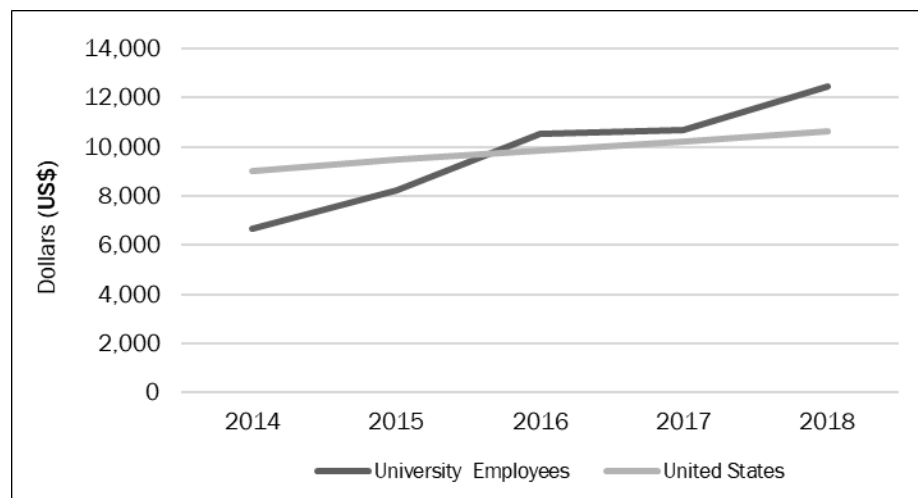
Community supported agriculture (CSA) is a unique food subscription model. Individuals pre-pay or subscribe to receive regular shares in a farm harvest. While CSA is evolving to incorporate varied commitment lengths, payment structures, product offerings, and customization options, this food acquisition model generally involves a farm providing the subscriber (i.e., shareholder) with farm products (i.e., shares) at regular intervals for a set duration. CSAs often offer weekly or biweekly shares across different phases of the growing season. This iterative structure, across multiple months, is consequential, as a shareholder in a produce-based CSA will experience a constantly changing variety of vegetables in their shares throughout the growing season. Additionally, shareholders may be given a larger quantity of produce than what they would normally buy at the grocery store. Because of these characteristics, shareholders are consistently challenged to incorporate a broader array and quantity of produce into their meals. These challenges evolve with the growing season. The CSA model thus offers opportunities for shareholders to modify food lifestyle behaviors (Rossi et al., 2017), and may be compelling for organizations interested in promoting behavior changes related to food.

This purpose of this study is to determine whether and to what extent CSA provides benefits to shareholder wellbeing. While many researchers have illustrated CSA impacts on communities, environments, and economies (Galt, 2013; Hayden & Buck, 2012; Hinrichs, 2000; Ostrom, 2007), an emerging research priority is to identify the potential of CSA to transform shareholders' relationships to food (Cohen et al., 2012; Rossi et al., 2017; Russell & Zepeda,

2008; Vasquez et al., 2016; Wilkins et al., 2015). Consideration of CSA health impacts comes at a time when per capita medical costs in the United States have increased ~40% over the past 15 years (Organisation for Economic Cooperation and Development [OECD], 2021). At our university, the trend is even more pronounced. In a sample of about 4500 employees enrolled in our university's Health and Wellness program, per capita billed medical claims have increased rapidly over the past five years (Figure 1). For employers who provide health insurance coverage and need to restrain intensifying medical costs, CSA may provide one avenue for the improvement of organizational wellness.

In this study, we analyze four years of survey and medical claims data from participants in employer-sponsored CSA voucher programs in central Kentucky 2015–2018. Our analysis is guided by two research questions. First, we ask whether CSA shareholders perceive their food lifestyle behaviors to change following participation. Previously published results from the first year (2015) of this voucher program suggest that CSA participants observed changes in a broad variety of behaviors (Rossi et al., 2017). However, those results only included first-time shareholders in one employer program. We have expanded our participant pool to include multiple employer

**Figure 1. Per Capita Annual Billed Medical Claims: Comparison between U.S. Average and University of Kentucky Employees Enrolled in the Health and Wellness Program**



programs, growing seasons, and CSA experience levels. We hypothesized that the expanded shareholder population would also perceive behavior changes, although the pattern may differ from the first-time shareholders in the 2015 pilot. We present and qualify our interpretations of these survey-based behavior change results.

Our second research question is whether participation in CSA is associated with any measurable health impacts as measured by changes in medical service usage. We compared anonymized medical claims costs from CSA participants to a control group of nonparticipants over the same time period and from the same employer pool. We hypothesized that shareholders would have statistically different amounts of medical claims costs following CSA participation compared to the control group.

Finally, we consider how different organizational and programmatic resources are relevant to the development of a CSA voucher program. Healthy behavior changes are not automatically assured by simply offering and incentivizing CSA at a workplace. Supplementary programming and administrative structures must facilitate the experience. From our experience with regional organizations developing and implementing voucher models based on our research, we offer suggestions for organizations that may be considering a CSA incentive model.

## Literature Review

Healthcare costs in the U.S., especially compared to other industrial countries, are rising substantially. These costs, which are over \$11,000 per year per capita (Figure 1), are felt by both citizens and their employers (OECD, 2021). A significant portion of these costs is directly related to diet, both for medical and pharmacy expenditures. Shifts toward vegetable-centric diets have the potential to significantly reduce costs by reducing the incidence of cardiovascular disease (Jones et al., 2019; Kris-Etherton et al., 2020; Martinez-Lacoba et al., 2018), as well as decreasing rates of other chronic diseases (Bechtold et al., 2019; Bellavia et al., 2013; Boeing et al., 2012; Dauchet et al., 2006). Although the American Heart Association recommends five servings of fruit and vegetables per day per person, only about

9% of U.S. adults meet this threshold (Bellavia et al., 2013; Lee-Kwan et al., 2017). Given these studies, programs which promote and reinforce produce consumption may have long-term health benefits.

Studies suggest that CSA can be particularly effective in improving vegetable consumption, especially when incentivized through cost-offsets or vouchers (Allen IV et al., 2017; Berkowitz et al., 2019; Cohen et al., 2012; Hanson et al., 2017; Landis et al., 2010; Vasquez et al., 2016; Wilkins et al., 2015). Beyond vegetable consumption, CSAs have been associated with myriad changes in behavior, in part due to the iterative, subscription-based format of CSA (Rossi et al., 2017). Shareholders must continually adapt to the changing contents of their produce box as the seasons progress. By being continually inundated with new produce varieties, shareholders must employ different strategies to avoid waste. Shareholders often gain food preparation skills, engage in vegetable-centric meal planning, and visit restaurants less often (Goland, 2002; Perez et al., 2003; Russell & Zepeda, 2008). They also alter food acquisition strategies. Some researchers have observed shareholders changing shopping habits by purchasing a broader variety of produce, favoring organic items, and spending less time shopping for food (Allen IV et al., 2017; Brown & Miller, 2008; Durrenberger, 2002; Russell & Zepeda, 2008).

With observations that CSA can affect healthy lifestyle changes, it is worth considering the contexts in which CSA may be offered and supplemented with programming to improve shareholder usage of and satisfaction with the produce box (Rossi & Woods, 2020). Workplace wellness programs, in other formats, can lead to positive returns on investment (Baicker et al., 2010; Berry et al., 2010; Chapman, 2012; Parks & Steelman, 2008). However, very few organizations have programming around healthy eating, apart from weight loss interventions. Programs centered on modifying food consumption behaviors are difficult to deliver as they require continued engagement from the participant and are thus subject to changes in individual motivation. As shareholders pay for at least part of the CSA subscription prior to receiving vegetables, they may be more motivated to

extract maximum satisfaction from their expenditure. Additionally, as the vegetables keep arriving every week, something must be done with them.

CSAs, then, are unique among wellness options because they involve repeated shareholder engagement over many weeks (20–25 in our locale). This requires a specific approach to meal planning and associated consumer choices. However, due to the seasonality and limited duration of a CSA, there is the potential for shareholders to revert to previous behaviors following the end of the season. While we have yet to determine an optimal research design for understanding potential behavior reversion, we suggest in another publication that parallel consumer food education programs increase the likelihood of shareholder satisfaction and willingness to renew in following seasons (Rossi & Woods, 2020). Similarly, behavior changes may be reinforced with supplementary programming. Organizations with existing wellness programs may address the limitation of CSA related to seasonality by offering programs related to nutrition and cooking. Thus, CSAs within employer organizations can expand market opportunities for farmers as well as provide shareholders with CSA usage guidance, which may aid yearly retention of shareholders.

CSA, however, is not the most accessible model for acquiring produce. The prepayment structure can act as a disincentive to lower-income households. As lower income is associated with disproportionately poorer health outcomes, CSA may not be reaching those who might best benefit from access to fresh food (Matthew & Brodersen, 2018). Research on CSA consistently finds participants to be predominantly white and middle/upper class (Durrenberger, 2002; Ostrom, 2007; Perez et al., 2003). CSA also privileges those with the time and ability to attend pick-ups and flexibly use unpredictable products in the box. Therefore, the CSA voucher/cost-share approach is an initial attempt at making CSA more accessible to income-limited consumers, as well as those who find the CSA model daunting. While our research primarily considers CSA participants in the context of wellness or employer programs, the incentive model can be modified to reach diverse audiences, food environments, and non-employer organizations.

## **Background of Central Kentucky CSA Voucher Project**

We developed a pilot study at the University of Kentucky in 2015 to examine the potential impacts of CSA on first-time shareholders. To induce participation, we offered a \$200 voucher to individuals who had never participated in a CSA. In total, we had 95 participants who were selected from a larger pool of interested individuals. Participants were given a pre- and post-season survey in which they evaluated 30+ metrics of behavior. We observed significant behavior changes across numerous indicators, especially for individuals who rated their health at or below average at the outset of participation (Rossi et al., 2017).

Following this study, we presented our results to the benefits office at our university, and they agreed to fund ~200 more vouchers in 2016 as a pilot employee benefit program. The original 95 participants from 2015 were invited to participate. Other employees were then randomly selected from a group expressing interest. We again evaluated behavior changes with a similar pre- and post-season survey.

We presented our data to other self-funded employer organizations in the region, and a few agreed to fund pilot CSA voucher programs in 2016 and 2017. All participants were offered the opportunity to take part in similar pre- and post-CSA surveys. In 2017, our city government and university both established the CSA incentives as broader employee benefits. The investments by the university and city government were critical to generating regional momentum for other employers to offer CSA participation incentives. These decisions were in part based on preliminary evaluations of survey data related to employee food lifestyle behaviors as well as CSA participant medical claims data. Expanded sets of these data serve as the foundation for our analysis in this paper.

During the 2016 season, we began working with a community development LLC to facilitate CSA incentive program promotion to new employers. We wanted an independent organization to facilitate the relationship between farmers, employers, and employees, as we expected shareholder voucher participants and their organizations might have a multitude of questions about the voucher

process and CSA model. Dealing with their concerns seemed especially important due to the expected participation of non-traditional CSA shareholders in an unfamiliar, novel wellness program. The facilitating organization was identified as a mediator between employers and farmers, to ensure both sides were not inundated with questions that the other might be more qualified to answer. The facilitator also was tasked with working out efficient administrative and financial infrastructures for facilitation. After the 2017 season, it became clear that the existing model was not working, and voucher facilitation was transferred to a statewide farmer advocacy organization. This gave more decision-making control over the program to the farmers participating in the voucher program.

Going into the 2020 season, 13 separate employers in our area funded ~1,300 CSA vouchers for their employees. At the start of our pilot in 2015, there were ~800 total CSA shares in our region, none of which were incentivized. In short, impact data from our voucher program provided compelling evidence to employers to offer incentives to their employees to become CSA shareholders. This paper presents key findings of this program to researchers and practitioners interested in a similar approach. In the following two sections, we discuss results from two distinct data types: self-reported behavior changes from pre- and post-CSA survey, and changes in the cost of medical claims for participants in CSA incentive programs. We present the methods, results, and analysis for each data type independently, since each type was gathered through a very distinct approach. We compartmentalize our analysis of each data type to ensure that shareholder behavior changes are considered fully before moving on to their medical claims data, which are quite different. As both data types represent potential and parallel CSA impacts, we discuss them together in the discussion section.

### **How Does CSA Impact Shareholder Behavior? An Analysis of Survey-Based Food Lifestyle Changes**

First, we discuss behavior changes that parallel participation in the various employer voucher

programs in our region. These changes are self-reported and based on a survey methodology. We present the data collection methods first, followed by a longer section that describes and analyzes the results.

### **Methods for the Lifestyle Changes Survey**

Participants in CSA voucher programs between 2015 and 2018 were given the option to complete a pre-CSA and post-CSA survey for a small incentive. The pre-CSA survey was offered each year in May. The post-CSA survey was offered in each November following program completion. Each survey had the same questions to compare behavior before and after the CSA season. (Some individuals participated in the CSA program in multiple years; in these cases, we only included responses for their first year of participation.) The number of survey participants from each year was: 2015 ( $N=93$ ), 2016 ( $N=150$ ), 2017 ( $N=227$ ), 2018 ( $N=276$ ). A total of 746 unique individuals completed both the pre- and post-CSA surveys, a 70% response rate from all voucher participants in these employer programs.

Table 1 includes the 22 behavior variables for which we present survey results in this section. These variables are based on a literature review of the relationship between CSAs and potential behavior change. While our literature review above describes the areas of behavior change often considered by researchers when measuring the impact of CSA and food systems, a detailed description of the survey development can be found in our previous publication (Rossi et al., 2017). We designed these questions to measure the frequency of behaviors such as vegetable consumption and meal preparation that other researchers previously observed CSA to impact.

Table 1 includes the question text for pre- and post-CSA surveys as well as the values respondents could select for each question. For most questions, we asked participants to rate their frequency of behavior over a set period of time (per week, month, or year). For vegetable consumption, we asked about daily intake. A set of questions asked them to agree or disagree with statements about recent changes to behavior. These questions were measured on a 5-point Likert scale.

For the per week, month, and year frequency questions, we used paired sample t-tests to compare the mean difference in responses of each individual before (May) and after (November) each CSA season, to determine whether there was a sta-

tistical change in perception of behavior frequency after participation in the CSA. We also used paired t-tests to measure differences in daily fruit and vegetable consumption. We applied this test across the whole participant sample and present the results in

**Table 1. Pre- and Post-CSA Survey Question Descriptions**

Variable	Question Text	Values
<b>Per Month Behaviors</b>		
Eat Vegetable Salads	Pre-CSA Survey: How frequently do you do the following during an average month?	0=Never
Eat Processed Snack Foods		1.5=1 to 2 times
Buy Organic Foods		3.5=3 to 4 times
Buy Foods Marketed as Locally Produced	Post-CSA Survey: How frequently did you do the following per month during the CSA program?	5.5=5 to 6 times
Read Nutrition Labels		7.5=7 to 8 times
		9.5=9 to 10 times
		11.5=more than 10 times
<b>Per Week Behaviors</b>		
Eat Processed Foods for Meals	Pre-CSA Survey: How frequently do you do the following during an average week?	0=Never
Prepare Dinner at Home		1.5=1 to 2 times
		3.5=3 to 4 times
	Post-CSA Survey: How frequently did you do the following per week during the CSA program?	5.5=5 to 6 times
Eat Dinner at Restaurants		7.5=7 to 8 times
		9.5=9 to 10 times
		11.5=more than 10 times
<b>Per Year Behaviors</b>		
Preserve food by freezing	Pre-CSA Survey: How frequently do you do the following during an average year?	0=Never
Preserve food by canning		1.5=1 to 2 times
Buy food directly from farmers or farmers' markets (excluding CSA pickups)		3.5=3 to 4 times
Visit a doctor (do not include wellness or preventative health visits)	*Post-CSA Survey: How frequently did you do the following per during the CSA program?	5.5=5 to 6 times
		7.5=7 to 8 times
		9.5=9 to 10 times
		11.5=more than 10 times
<b>Miscellaneous Measures</b>		
Fruit and Vegetable Consumption	Try to estimate your average daily fruit and vegetable servings over the course of the last six months. (1 serving=½ cup cooked or 1 cup of raw vegetables; 1 cup of fruit of 100% juice)	Continuous – 0 to 14 servings per day
Health Condition	How would you rate your current health condition?	1=Poor; 2=Below Average; 3=Average; 4=Good 5=Excellent
<b>Perceptual Measures</b>		
I pay attention to food sources and farming	Do you agree or disagree with the following statements?	1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree
I consume processed food regularly		
I am happy with my weight		
I engage with peers in conversations about food		
I have good digestive health		
I have recently gained cooking skills		
I have adequate energy to complete daily tasks		
I usually have a positive mood		

Notes: \* The CSA duration was approximately six months. We recoded responses for the post-CSA survey by doubling the value to match the duration of the response in the pre-CSA survey. Additionally, we recoded categorical variables for behavior frequency into continuous variables defined by the mid-point of the ranges in the original variable. See the 'Values' column for details.



Table 3, with the mean post-CSA minus pre-CSA frequency changes.

In addition, we segmented the full sample into two groups based on individuals' responses to the 'Health Condition' question. The lower health (LH) group is composed of individuals who answered 'poor' or 'below average' to the question "How would you rate your current health condition?" The higher health (HH) group includes those who answered 'average,' 'good,' or 'excellent.' We compared perceptions of behavior frequency within the segments using *t*-tests in the same manner as above. The results are also presented in Table 3. Based on a previously published analysis of 2015 pilot data, we had considered that the LH group might observe their behaviors to change more substantially. With a larger sample size, over more growing seasons (2015–2018), and with a more diverse participant pool, we are able to evaluate this consideration more carefully.

We conducted Wilcoxon signed-rank tests on the questions related to perceptual measures and self-reported health condition, since these questions are measured on a 5-point Likert scale. The Wilcoxon test determines whether the median responses to the question in the pre- and post-CSA surveys are statistically different. It also indicates the direction of change for paired responses; a positive change would be an overall shift in responses from the 'disagree' to 'agree' range of the response. We employ the same test with the question about overall health condition.

## Results and Analysis of the Lifestyle Changes Survey

Survey participants from our CSA incentive programs generally are female, about 43 years old, and have a household income of about \$110,000 (Table

2). Sixteen percent of participants assessed their health to be poor to below average, i.e., the lower health (LH) shareholder group. Demographics are similar when segmented by self-assessed health.

Table 3 shows the results of the paired *t*-tests, which illustrate differences in perceptions of behavior change between pre- and post-CSA intervention groups. The 'Post-Pre Difference' column is the mean difference in perceived behavior change for individuals within that group. Individuals' responses are only included if they have both a pre- and post-CSA response, since individuals are compared to themselves.

First, we examine all shareholders regardless of their self-assessed health condition (i.e., 'All Shareholders' column). In general, participants in the CSA programs perceived a number of changes. Regarding processed and fresh food indicators, shareholders observed a monthly increase of vegetable salad consumption and a decrease in processed snack food. They also felt that daily vegetable and fruit consumption was increasing slightly, while observing processed meal consumption to decrease by nearly one meal per week.

Shareholders estimated vegetable consumption at 4.3 servings per day (not shown in Table 3) prior to participation. This level is relatively high compared to the national average, so it is not entirely surprising that the perceived magnitude of change post-CSA is not very high. Shareholders may be joining CSA because they already enjoy vegetables and see this as an opportunity to get better quality farm products. It is also possible that participants are simply overestimating pre-CSA consumption. In addition, this current data set includes experienced shareholders who started in 2016 (as opposed to exclusively first-time shareholders as in 2015), so the more

**Table 2. Demographics for Survey Participants: All Shareholders and Shareholders by Self-Assessed Health**

	All Shareholders	Lower Health (LH) Shareholder Segment	Higher Health (HH) Shareholder Segment
N	746	119	627
Age	42.6	43.1	42.5
Sex (% female)	71%	78%	70%
Household Income (\$1000)	\$110	\$101	\$111
Household Size (Individuals)	2.4	2.4	2.4

dramatic changes we observed in our pilot study (Rossi et al., 2017) might be tempered by those who have already achieved an initial positive change.

Shareholders perceived a slight increase in frequency of preparing dinner at home and a slight decrease of meals away from home. In terms of food acquisition strategies, participants reported that they observed buying 'organic' and 'local' foods more often while decreasing their direct purchases from farmers (excluding CSA activities). They also observed an increase in food preservation activities.

We asked shareholders to answer whether or not they agreed with statements that identified a specific change in health and wellbeing (Table 4). Differences in individuals' paired responses to the rating were compared before and after CSA using the Wilcoxon signed-rank test. We represent statistical changes in the median responses of each

group with asterisks for significance level and + or – for the directionality of change in magnitude of agreement. In this category, shareholders most strongly agreed with statements related to increased cooking skills, good digestive health, and peer engagement around issues related to food. They also shifted toward agreeing with statements related to having adequate energy and rated their health higher than in the pre-survey. While respondents had more positive assessments post-CSA with the question related to weight, most shareholders disagreed with this metric before and after CSA. Finally, they disagreed more strongly about regularly consuming processed food, which means that they perceived they were consuming less after the CSA.

While the changes above apply broadly, more details emerge when different subgroups of shareholders are compared side-by-side. We segmented the respondent population into lower ( $N=119$ ) and

**Table 3. Perceptions of Behavior Change Frequency Following CSA Participation**

	All Shareholders			Lower Health Segment			Higher Health Segment		
	N	Post-Pre Difference		N	Post-Pre Difference		N	Post-Pre Difference	
Fresh and Processed Food Consumption									
Eat salads <sup>a</sup>	739	0.9	**	117	1.8	**	622	0.8	**
Eat processed snack foods <sup>a</sup>	625	-1.5	**	95	-1.5	**	530	-1.6	**
Eat processed foods for meals <sup>b</sup>	744	-0.7	**	119	-0.8	**	625	-0.6	**
Fruit and Vegetable Consumption <sup>c</sup>	623		*	96			527		
		0.2			0.6	**		0.1	
Purchasing and Nutrition									
Buy organic foods <sup>a</sup>	620	0.4	**	95	1.0	*	525	0.3	
Buy food marketed as locally produced <sup>a</sup>	621		**	96			525		
		0.5			0.8			0.4	**
Read nutrition labels <sup>a</sup>	624	-0.7	**	95	-0.6	**	529	-0.7	**
Buy food directly from farmers <sup>d</sup>	616	-1.2	**	94	-0.2		522	-0.7	**
Food Preparation									
Prepare dinner at home <sup>b</sup>	745	0.1	**	119	0.6	**	626	0.1	
Eat dinner at restaurants <sup>b</sup>	746	-0.1	*	119	-0.1		627	-0.1	*
Preserve food by freezing <sup>d</sup>	614	1.4	**	94	2.3	**	520	1.3	**
Preserve food by canning <sup>d</sup>	614	0.8	**	94	0.5	**	520	0.9	**
Miscellaneous									
Visit a doctor	508	-0.4	**	78	-0.5		430	-0.4	*

Notes: \*  $p<0.05$ ; \*\*  $p<0.01$ . Post-pre difference is the frequency change of the behavior following participation. The measures for each behavior are: <sup>a</sup> Times per month; <sup>b</sup> Times per week; <sup>c</sup> Daily Servings; <sup>d</sup> Times per Year

higher ( $N=627$ ) health shareholder segments. We used paired  $t$ -tests to compare perceptions of pre- to post-CSA behavior frequency for individuals within each segment. We conducted Wilcoxon tests on perceived data for individuals in each segment as well. These results are presented alongside the full shareholder population data in the Lower Health (LH) and Higher Health (HH) columns in Tables 3 and 4.

We first note that perceived fruit and vegetable consumption differs by group (Table 3). Shareholders in the LH group observed an increase in fruit and vegetable consumption (0.6 servings per day). HH shareholder observations were not significantly different. The HH segment had a pre-CSA mean of 4.3 servings per day, which is rather high compared to the national average and would be difficult to improve. It stands to reason that if they are evaluating their health as ‘good’ or ‘excellent,’ they may be including current vegetable consumption as part of this self-assessment. Both groups perceived strong decreases in monthly processed snack food consumption and weekly processed meal consumption (Table 3). Observed monthly vegetable salad consumption also increases for both groups, but is strongest in the LH segment (Table 3).

The food away from home metrics are somewhat more complicated. Shareholders in the LH

group observed an increase in the frequency of dinner preparation at home. However, they did not report any frequency change in visiting restaurants for dinner (Table 3). Both groups agree with the statement ‘I have recently gained cooking skills’ (Table 4). Both segments perceive an increase in canning and freezing food. It does appear, then, that CSA influences food preparation habits.

Regarding food acquisition, the LH segment perceived increased purchasing of organic food while the HH group observed no change (Table 3). The LH change squares with their increased agreement with the statement ‘I pay attention to food sources and farming’ (Table 4). The HH shareholders did report increased purchasing of locally produced food while also perceiving a decrease in the number of times they made purchases directly from farmers (Table 3). It is possible that shareholders are replacing direct market purchases (e.g., from farmers markets) with CSA products. They may also be acquiring supplementary local products from other outlets (e.g., specialty retail). These relationships suggest that CSA has a complex impact on shareholder food acquisition choices.

In the perceptual metrics, the LH group expressed increased agreement for all categories except ‘I consume processed food regularly.’ These perceived changes could be explained by shareholders undertaking general changes to their life-

**Table 4. Change in Disagreement/Agreement with Statements Following CSA Participation**

	All Shareholders		Lower Health Segment		Higher Health Segment	
I pay attention to food sources and farming			+	**	+	**
I consume processed food regularly	-	**			-	**
I am happy with my weight	+	**	+	**	+	**
I engage with peers in conversations about food	+	**	+	**	+	**
I have good digestive health	+	**	+	**	+	**
I have recently gained cooking skills	+	**	+	**	+	**
I have adequate energy to complete daily tasks	+	**	+	**	+	**
I usually have a positive mood	+	*	+	**		
How would you rate your current health condition?	+	**	+	**	+	**

Notes: All variables except for ‘health’ rated agreement with a statement about changes in perception (1=Strongly Disagree to 5=Strongly Agree). Health is a self-perception of condition ranging 1–5 (i.e., Poor to Excellent). See Table 1 for full questions. \*  $p<0.05$ ; \*\*  $p<0.01$

style beyond CSA. As such, we can only assert that the CSA experience exists alongside a number of other changes. The HH group also experienced similar perceptual changes. Finally, in regard to self-perceived health condition, both segments perceived a positive change in health state. In short, shareholders in both health categories perceive CSA to be broadly impactful on their behaviors.

### **How Does CSA Impact Shareholder Health? An Analysis of Changes in Medical Claims Costs**

We present methods, results, and analysis for a study of medical claims of selected CSA shareholders from the University of Kentucky voucher program. These data, compared to the survey results prevented above, are unique and require a different analytic approach. Then we present a discussion section in which we evaluate CSA impacts more broadly, considering medical claims results alongside survey-based behavior change data as well as testimonials from participating shareholders.

### **Methods for Medical Claims Costs Analysis**

Self-reported behavior data can provide some insight into the wellbeing of individuals, even if it is just aspirational. As noted, local employer organizations found behavior change data from our 2015 pilot to be compelling, but also wanted to know if there was clear return on investment from a \$150-200 per employee voucher. Fortunately, we had access to medical claims data from participants in our university's CSA benefit program, the largest voucher provider in our region. These data allowed us to explore whether billed medical claims paralleled perceived behavior changes.

Our approach was to measure differences in billed medical claims between CSA participants and a control group. We worked with the University benefits office to identify CSA shareholders (test) and non-shareholding employees (control) who had given advanced permission to have anonymized

data used in research. We pooled shareholders from the 2015 and 2016 CSA programs to serve as a test group. For participants in the 2015 CSA program, the threshold between the pre- and post-CSA period was defined as September 30, 2015. For the 2016 CSA participants, September 30, 2016 was the threshold between pre- and post-CSA. For the control group, we used the same threshold as in the 2015 cohort. We included the six-month CSA duration as part of each pre-CSA interval since we expected a lag between intervention and biophysical response as measured by medical claims. At the time of analysis, we had two years of pre- and post-CSA medical claims for 251 employees who participated in a CSA during 2015 and 2016. We also had two years of pre- and post-CSA data for ~3600 non-participating employees to act as a control group. Participants in both groups were on average 43 years old with the same ratio of females to males (2.6 to 1).

With these data, we calculated the average difference in annual billed medical claims for each individual by subtracting pre-CSA from post-CSA claim amounts.<sup>1</sup> We then generated the mean pre/post difference for individuals within the pooled CSA participant (test) and CSA non-participant (control) groups. Finally, we conducted two-tailed *t*-tests to compare the mean billed differences between the test and control groups. We wanted to determine whether mean differences in post- minus pre-CSA claims differed between the groups. Prior to these analyses, we removed the top and bottom 1% of pre-/post-CSA billed claim differences from our dataset to limit the impact of outliers.

We conducted our *t*-tests as described above for three different types of claims: (1) all billed medical claims, (2) diet-related medical claims, and (3) diet-related pharmacy claims. The first category of claims included all medical claims, representing the full medical service usage of individuals in both groups. The second and third type of claims were a

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<sup>1</sup> Because not all individuals were employed for two full years pre- and post-CSA, we generated an annual expenditure for the pre- and post-CSA periods based on the three-month intervals in which they were fully employed. For example, if someone was employed for 15 months prior to CSA participation, the annual expenditure was based on the average billed amount for those five three-month periods multiplied by four. We were only given billed claims if the individual was fully employed over each three-month duration. This was the minimum interval for which we could receive employment data and still have the claims considered anonymized.

subset of the total and were specifically related to diet. We consulted with public health experts to identify specific claim codes related to medical diagnoses and pharmacy prescriptions that might be expected to change with increased vegetable consumption. These conditions included services related to hypertension, obesity, and diabetes. Once these codes were identified, we marked specific claims (and their billed amounts) containing these potentially diet-related codes.<sup>2</sup> This eliminated claims related to physical trauma, chronic conditions, chemotherapy, and other medical issues either unrelated to diet or not to be expected to change with diet modification. We cross-referenced these claims with their associated procedures codes to eliminate any claims related to catastrophic events such as expensive emergency surgeries that would skew costs dramatically.

### Results and Analysis for Medical Claims Costs Analysis

While measuring behavior changes in CSA is important, whether these perceived changes translate into biophysical impacts is an open question. We evaluated whether changes in billed medical claims differ in magnitude when comparing CSA shareholders to non-participants from the same employee pool. We present results while qualifying and contextualizing these data, as we are collecting longer-term data and developing more complex analytic models. The following results, then, should be treated as preliminary in regard to the potential health benefits of CSA.

In Table 5, we present the results from *t*-tests comparing pre-/post-CSA differences in billed claim amounts<sup>3</sup> between the test and control groups. These data allow us to compare whether

changes in claims after a specified date are statistically different depending on whether someone participated in a CSA.<sup>4</sup> The mean differences (mean diff) columns represent the average annual difference in billed claims pre- and post-CSA for the test or control group.<sup>5</sup> A positive difference means that billed amounts increased after CSA participation, or after the date used to delineate pre- and post-intervals for the control group. The 'group difference' column is the difference between groups with respect to their pre-/post-CSA expenditure differences. Positive figures in the 'group difference' column indicate that billed claims increased more for the control group compared to the test group.

When comparing the changes in total billed amounts between the groups (Table 5, Row 1), the differences are not significant; the increases in billed amounts for both groups are not statistically different. This lack of difference is not surprising, because the total billed claims category includes all claims regardless of their potential relationship to diet. Physical trauma, routine check-ups, surgery, and diagnostic imaging are included in the data and are likely to obscure any changes in diet-related expenditures.

When we compare group mean differences for diet-related claims only, the CSA group appears to be billed annually \$201 less in diet-related physician and hospital services than the control group (Table 5, Row 2). This difference between groups is statistically significant. The control group's claims costs appear to increase relative to the claims of CSA shareholders. This result suggests that CSA participation may impact diet-related medical claims.

Both groups show increases in diet-related pharmacy claims over time (Table 5, Row 3). The magnitude of these increases, however, is not sta-

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<sup>2</sup> We used ICD-9 and ICD-10 codes, which are standard diagnosis codes for clinics and hospitals. Visits are billed to insurance companies based on a combination of these diagnosis codes and associated procedure codes.

<sup>3</sup> We used the field 'billed expenses' from the medical claims in order to avoid having to determine the rate negotiated between the service provider and the insurance company. As most participants were using the same medical system, the billed expenses should be relatively constant.

<sup>4</sup> We pooled participants from the 2015 and 2016 CSA programs to serve as a test group. As individuals in the control group did not participate in the CSA, we designated a date to delineate 'before' and 'after' intervals. We used the same cutoff date as we did for the 2015 CSA cohort. The pre-CSA period for the 2015 CSA cohort and the control was defined as 10/1/2013–9/30/2015. The post-CSA period was 10/1/2015–9/30/2017. For the 2016 CSA participants, 9/30/2016 was the cutoff date between pre- and post-CSA.

<sup>5</sup> We calculated the average expenditures differences for three-month intervals across a maximum of two years pre- and post-CSA. We received claims data only if an individual was insured for the full duration of each interval.

**Table 5. Annual Differences in Billed Medical Claims for CSA Participants and Non-Participants**

Claim Type	Nonparticipants (Control Group)		CSA Participants (Test Group)		Between Group t-test	
	N	Mean Diff (SE)	N	Mean Diff (SE)	Group Difference	p-score
Total Billed Claims	3,033	\$1674 (215)	251	\$1281 (750)	\$393 (777)	0.61
Diet-Related Medical Claims	3,005	\$199 (29)	250	-\$2 (103)	\$201 (106)	0.05*
Diet-Related Pharmacy Claims	3,022	\$79 (7)	249	\$63 (23)	\$16 (27)	0.55

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$

tistically different when comparing groups. In this type of claim, which is specific to diet-related medications (i.e., obesity, hypertension, type-2 diabetes), there is no obvious short-term benefit to CSA participation. The two groups are similar in terms of increases in billed amounts.

These various medical and pharmacy claims suggest some initial insights. Both groups show steady increases in total medical claims (also suggested by Figure 1) and pharmacy claims. These differences are statistically similar in magnitude. However, diet-related medical claims increase at a greater rate for the control group than for CSA shareholders. It seems that diet-related claims costs for CSA participants remain steady while costs for non-participants increase. While this initial analysis presents some evidence that CSA has an impact on diet-related health outcomes, we will consider a few reasons for pause in the discussion section. Again, we are developing further analytic approaches to test and verify these results, so they should be considered preliminary.

## Discussion

In the data presented, we observed that CSA shareholders perceive changes in behavior following participation in an employer-sponsored voucher program. These perceptions parallel voluntary feedback we received from participants in these programs. We present some of these open-ended responses from the post-CSA surveys to help contextualize our quantitative data.

First, many participants connected behavior changes with the volume of produce received. Shareholders were extremely concerned about wasting items from their produce box. In many cases, they complained about the overwhelming

volume of certain items in their box. Kohlrabi, kale, and squash often were the culprits. However, once they adjusted to this situation, participants noted that waste avoidance was a motivator. For example, “This program has definitely increased our vegetable intake and we have tried several new recipes. Our goal is to not let anything go to waste, so we have to work hard to not have any leftover veggies at the end of each week.” Another participant had a stronger sentiment:

This was a life-changing experience for me, actually somewhat emotional. I LOVED driving by the farm knowing that was MY food being prepared. It opened my eyes to foods I had never experienced before. As a frugal person who avoids waste, the experience ‘forced’ me to plan ahead and experiment with my food. I liked the recipes, tried several of them and appreciate instructions on storage.

The connection between waste avoidance and creative food preparation may have been a key motivator for many behavior changes. One shareholder likened CSA to “solving a puzzle each week.” The unpredictable contents of the box presented a unique challenge. One participant stated that the CSA “renewed my interest in canning and preserving. ... I had to do SOMETHING with all that food.”

These sentiments suggest that the repetitive pattern of CSA provided an experience that required modifications to typical food purchasing and consumption patterns. By providing a large amount of produce on a weekly basis, the entire food environment of a household shifts. As one participant states, “During the delivery months, I

am less likely to eat at restaurants because I already have food to prepare at home. Not only is it a better quality but I don't want to waste it. It also allows me to try to prepare things I might normally not buy." Another shareholder states, "The increase in organic and local fruits and vegetables has helped cut down on grocery spending and boosts my family's interest in fruits and vegetables."

Here we see echoes of the quantitative results presented in Tables 3 and 4, in which the full shareholder sample showed an increased frequency in purchasing organic and local foods and in consuming vegetables daily. Upon experiencing CSA, many shareholders may see more value in alternative food networks in general. The specific reasons for changing food acquisition strategies may be an area for further research. In other words, for whom and to what extent does CSA participation alter food purchasing patterns? Surprisingly, CSA participation is only associated with small quantitative increases in frequency of dinner preparation (Table 3), even as participants in both groups perceive their cooking expertise to have improved (Table 4). Nevertheless, the qualitative commentary from shareholders is firmly on the side of a shift toward more food at home. The connection between food preparation and health is clearly articulated by a first-time shareholder:

Working with a CSA has made the entire family more willing to eat healthy. The kids enjoy going through the bag every week to see what we have gotten and are more willing to try foods that have those fruits and vegetables in them. In an attempt to make sure that we don't waste any of the CSA items, my husband and I have also been eating a lot healthier. Searching for recipes to cook veggies that we wouldn't normally eat has been a lot of fun.

Others stated in open-ended responses that CSA participation had a broader social benefit. They discussed sharing excess produce with neighbors and coworkers, engaging in meal swaps, and attending potlucks. While COVID-19 may make meal sharing less viable in the short-term, it is

providing more motivation for individuals to cook at home and to buy directly from producers. These influences may make CSA more accessible in the long run. A point that is less speculative, however, is that CSA participants view the experience as providing motivation to modify their relationship to food. For instance, perceptual metrics (Table 4) show that LH and HH shareholders gained knowledge of food sourcing and engaged more frequently with peers about food.

While the specific reasons for these evaluations requires further study, the general perception of shareholders is that CSA impacts their food lifestyle behaviors in a positive way. This positive evaluation is important when considering a CSA incentive as a wellness option because participants are able to identify and articulate the perceived benefits of their participation. Some shareholders felt that CSA-related behavior changes were directly benefiting their health. As one participant noted:

After a recent annual physical, my doctor noted that I had high cholesterol and needed to make adjustments to my diet. He recommended eating a variety of colorful fruits and vegetables as a way to improve health. I like the CSA because incorporating these fruits and vegetables into my diet is essentially automated. Someone selects a variety of produce, it arrives at work, and that convenience has really helped me implement this health goal. My health metrics improved at the last check-up. The CSA shares delivered to my work removed many barriers to entry.

The CSA incentive, especially in work-place scenarios, can provide an on-ramp for individuals to make changes in their own behaviors. Participants' self-perception that they are doing something that contributes to their longer-term well-being may support or reinforce broader lifestyle changes. Perceptual indicators (Table 4) do support the idea that some shareholders perceived the experience in CSA to be impactful in many wellness-related areas, such as digestive health, mood, energy, and general health level. That these programs also make CSA participants have a more positive view of their employer or benefits pro-

gram can also lead to better satisfaction with the workplace environment.<sup>6</sup>

Positive behavioral changes can potentially lead to quantifiable improvements in health if individuals maintain these changes. Our analysis of medical claims is an attempt to consider short-run impacts of these programs, since employers who fund CSA incentives are keenly interested in potential cost savings. Our research points to the possibility of CSA having some measurable financial impacts in terms of participant medical claims. We have seen statistically significant decreases in diet-related billed claims for CSA participants compared to the control group. While these data are compelling, we suggest that much more work be done to ascertain the impact of CSA on medical claims.

Human health and physiology is complex, and the duration of behavior change required to see long-term health changes reflected in billing patterns is likely longer than the two-year pre- and post-CSA intervals we employed in this analysis. Additionally, billed claims may fluctuate in a way that increases or decreases over a longer term. It may be that CSA participants' medical usage is cyclical, and we captured a moment in time where there was a decrease. Nevertheless, as of 2021 the CSA voucher program is continuing. We will eventually have the ability to analyze multiple years of claims data for each participant. With longer-term data and an expanded shareholder population, we may be able to provide more clarity about the CSA impact through more complex econometric analyses.

Behavioral and perceptual data from surveys (Tables 3 and 4) suggest that certain behavior changes are perceived more strongly by shareholders who began their CSA in a lower health category. Wellness programs, then, may receive a better return on their investment if they target potential participants who are not already in a high health category. In our claims data, many shareholders had billed claims prior to participation that were quite low, sometimes near zero. Our shareholder population is likely a healthier subset of the

overall employee population. A more complete and generalizable analysis would have more individuals that meet criteria as higher risk patients. However, we had no way to match the 'lower-health' shareholders from our survey analysis to participants in the claims analysis, since the latter were anonymized.

Our Health and Wellness Organization attempted to limit recruitment to the CSA voucher initially (in 2015 and 2016) to those with a health profile that would likely benefit from increased vegetable consumption. Many of these higher-risk individuals were less interested in joining the CSA. Health and Wellness eventually relaxed their criteria to include lower-risk employees. Developing strategies to diversify the subscriber base in terms of health is a critical, yet quite difficult challenge that employer-support organizations have not yet solved.

While employers are interested in knowing whether CSA can reduce medical claims, it is not feasible to say more than that there exists a possibility that CSA can have an impact. Whether CSA participation on its own has a tangible, quantifiable (e.g., vis-à-vis medical claims) health benefit, however, is somewhat beside the point. Our main contribution is to outline an approach to evaluate medical claims changes in relation to CSA-related employer programs since behavioral and perceptual data suggest that participants see value in CSA for their health. Physiological change may be possible to observe, however a more robust evaluation would require a larger, continuously enrolled shareholder population that started CSA with higher initial medical claims. As our incentive program expands and diversifies its subscriber base, we may be able to identify participants who fit these conditions and can provide a better sense of long-term CSA impact.

### **Conclusion: Organizational Considerations for CSA Incentive Success**

Over the course of our overall research, we have observed CSA benefits to individuals, communi-

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<sup>6</sup> We included a few questions in our survey about employer perception and satisfaction, though we have not included the formal results in our tables. On average, however, the CSA incentive program improves the employees' view of their employer and associated benefits offerings.



ties, and organizations through different types of data. However, the relative success of an incentive program involves more than simply giving someone a voucher and telling them to choose a CSA farm. The CSA approach, as noted, is quite different from typical food acquisition channels. It requires learning and time management in different areas, such as seasonal food preparation and shopping for supplementary meal ingredients. These requirements (as well as the up-front payment) will tend to exclude individuals who do not have flexibility to alter their food acquisition strategies and finances. If a new consumer makes the jump to CSA, they might find the model ill-suited to their needs, skills, or preferences. Thus, specific social and institutional supports are critical to making a CSA incentive program work and allow individuals to derive benefits from it. Because these programs may be more appealing to individuals who are already eating vegetables and have healthier lifestyles, an effective incentive program requires innovative recruitment strategies that focus on lower-health individuals as well as in-season shareholder education programs.

Our partner organizations had a number of strategies to engage new shareholders. Recruitment focused on providing an overview of the CSA concept for employers (e.g., benefits personnel, wellness coordinators, etc.) and potential shareholders who were unfamiliar with the model. Innovations such as payroll deduction, which would spread out the employee payment while still paying the farmer up-front, were offered by some employers along with vouchers. These create a less complicated, more financially feasible program for some shareholders. Farms and farm support organizations also held CSA fairs, where potential shareholders could meet CSA farmers, discuss the model structure, and learn about what they might see on a weekly basis. For instance, to emphasize the seasonality of CSA boxes, some farmers used a series of 20-25 pictures of their CSA boxes to show the weekly evolution of the produce box. This type of visual representation helped manage shareholder expectations. However, post-season feedback revealed that many new shareholders were still shocked by how much squash they received in the summer months, while not realizing

how late in the season tomatoes emerge. In 2020, in-person CSA fairs were not possible due to COVID-19, so a local-farmer support organization, in conjunction with the state department of agriculture, held a virtual fair. The 'attendance' was at least three times that of the in-person fairs, and the fair suggested some emerging strategies for farmer-shareholder engagement (Spencer, 2020).

Consumer education programs were critical to maximizing shareholder benefit and satisfaction, and were the cornerstone of how we envisioned various employer-supported programs (Rossi & Woods, 2020). Depending on the capacity of the specific employer, some workplaces offered programs aimed at improving shareholder experience. Some organizations had a nutritionist or chef conduct live (and recorded) cooking demos. They would take that week's box of produce and create a meal. Others did 'Iron Chef'-type competitions with employee contestants. A few offered weekly recipe cards. One larger organization hosted a well-known local chef to offer some quick cooking tips on greens one might encounter in an early-season CSA box. These programs, which are constantly evolving, focus on strategies for seasonal eating and food preparation.

CSA incentive programs are difficult to establish initially and require a highly effective point-person within that organization or employer. Sometimes this is a dedicated employee who is passionate about CSA; sometimes, a wellness professional who sees value in offering a food-related employee benefit. These individuals can facilitate work-place drops, promote CSA to peers who are unfamiliar to the concept, make connections with farmers, and campaign to get benefits directors to approve an incentive program. They also can offer or organize supplementary programming in-season, poll peers on their pre-season interest in CSA and post-season satisfaction, and promote the model to friends in other organizations and workplaces. A successful incentive program requires farmers or farm support organizations to identify the person within an organization who has a direct line to potential funding sources for that benefit. While the employee benefits director might be this person, that is not always the case. There is no set playbook for engagement, as each organizational

hierarchy of influence differs. To reiterate, finding an internal champion within an organization is the first critical step in establishing a long-term CSA incentive program.

Establishing effective technical assistance networks or farmer support organizations is critical to long-term success of incentivized CSA programs. Experienced farms help lend legitimacy to the CSA by providing consumers with a high-quality experience. The farmer-centric organization that manages our voucher program directly engages employer organizations to promote the CSA concept and the incentive model. It has developed different engagement strategies, depending on the type of employer, which are constantly evolving. Its role in expanding consumer consciousness of CSA is important, and it helps shield the farms from the typical questions of first-time shareholders by providing consumer-facing resources for CSA usage. In addition, as a liaison with employers and their wellness initiatives, the organization acts to

transfer innovations around in-season programming and shareholder engagement. It helps identify, vet, and on-board new farms based on the standards set by their advisory board to bring CSAs into the fold.

As voucher program facilitators evolve, their innovations will have broader resonance, especially those that are responding to the COVID pandemic. By connecting with CSA support organizations across the U.S., such as the CSA Innovation Network ([csainnovationnetwork.org](http://csainnovationnetwork.org)), they can learn from and promote models to others who are working to expand local food systems. As national knowledge networks or ‘communities of practice’ develop and expand—in part because of the COVID response—we hope that innovations such as the CSA incentive programs we describe might serve to inspire and build consumer awareness of and engagement with farmer initiatives in various local food sectors.



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## Procurement and delivery of food at holiday provision clubs

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### Abstract

While school food initiatives across England support children's nutritional intake during school term time, there is no universal state provision during the school holidays to reduce the risk of children experiencing food insecurity. In the absence of a national program of holiday provision, community organizations in disadvantaged communities have established holiday clubs offering free food and activities to children. This paper exam-

ines how these holiday clubs source food and the challenges of procuring food and delivering healthy meals that adhere to UK School Food Standards. Results indicate that holiday clubs adopt a variety of procurement strategies including relying upon donated food. While club leaders have sought opportunities to source food cost-effectively, the

### Author Contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Emily Mann, Clara Widdison, Zeibeda Sattar and Margaret Anne Defeyter. The first draft of the manuscript was written by Emily Mann and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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### Conflicts of Interest/Competing Interests

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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findings suggest significant challenges for these clubs to achieve their aim of delivering healthy meals. Findings point to needs for sustainable funding and the developing healthy food procurement policies and processes that align with a wider food strategy.

### **Keywords**

Child, Food Insecurity, Food Procurement, School Holidays, Holiday Provision, Community Organizations

### **Introduction and Literature Review**

A healthy diet in childhood is important for long-term health and development. Conversely, it is recognized that a high-energy diet together with physical inactivity can lead to obesity, type 2 diabetes, cardiovascular disease, some cancers, and osteoporosis (Joint World Health Organization [WHO]/Food and Agriculture Organization of the United Nations [FAO] Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases, 2003). Furthermore, frequent consumption of sugar dense food and drinks contributes to dental decay (Joint WHO/FAO Expert Consultation, 2003). The Eatwell Guide, developed by Public Health England, provides guidelines on the proportion of food types to achieve a healthy, balanced diet (Public Health England, 2016). A daily balanced diet should consist of at least five portions of fruit and vegetables, some starchy food, dairy, and protein-rich foods, while limiting the amounts of food high in saturated fat and salt, and food and drink high in added sugars (Public Health England, 2016; Scientific Advisory Committee on Nutrition [SACN], 2012). Despite these guidelines and the emphasis on obtaining a healthy diet, many factors influence food purchasing behavior: household income as well as resources, such as access to the internet, public transport, or a car (Burgoine et al., 2018; Dowler & Lambie-Mumford, 2015; Ginn et al., 2016; Thornton et al., 2014). Moreover, one of the principal barriers for low socioeconomic groups to obtain a healthy diet is the cost of healthy food items, such as fruit and vegetables, and it is evident that these food items are more expensive than energy-dense food with poor nutritional value (Darmon & Drewnowski, 2015; Jones

et al., 2014; Williamson et al., 2017). The level of household income affects an individual's diet, and as deprivation increases, it is less likely that members of the household can afford not only healthy food but also housing with sufficient facilities to store and prepare meals (Board of Science, British Medical Association, 2015; Dimbleby, 2020; Marmot et al., 2010). Subsequently, households in the lowest income deciles do not have sufficient food budgets to meet the cost of achieving a healthy diet that accords to the Eatwell Guide (House of Lords, 2020; Scott et al., 2018), and these households are likely to experience food insecurity (Department for Health, 2005).

Food insecurity can be considered in the context of an individual's social and economic circumstances, with those less well off in society at risk of being food insecure (Long et al., 2020). This has a direct effect on their social determinants of health; a social gradient exists, with the poorest in society experiencing worse health outcomes than their wealthier peers (Marmot et al., 2010, 2020). Recent evidence submitted to the House of Lord's Select Committee on Food, Poverty, Health and Environment indicate that local food environments have a negative impact on lower-income groups and contribute to rising health inequalities as outlets selling less healthy food, including fast food outlets, are more likely to be concentrated in disadvantaged neighborhoods (House of Lords, 2020; Public Health England, 2018). Thus, it is unsurprising that adults and children living in deprived areas are significantly more likely to become obese or suffer from diet-related ill health (House of Lords, 2020; Marmot et al., 2020).

The Household Below Average Income (HBAI) figures published by the Department for Work and Pensions (DWP) in March 2020 indicate that 14.5 million people were living in relative poverty in the UK in 2018/19 (DWP, 2021). Of this total, 4.2 million were children, equivalent to around a quarter of all children or eight in a classroom of 30 children, and this figure has increased by over 500,000 since 2010 (DWP, 2021). Until recently, household food security has not been routinely measured in the UK. The Food Standards Agency's results from Wave 5 (2018 data) of the Food and You survey revealed that 10% of adults

lived in households with low or very-low food security, and approximately one in six adults (17%) reported that their household worried in the last 12 months about running out of food before there was money to buy more (Food Standards Agency, 2019).

The Department for Education (DfE) and the Department of Health subsidize several policies during school term time to support the nutritional needs of children from low-income families. These initiatives include Free School Meals (FSM) for families receiving income support, Universal Infant FSM for all children aged 4 to 7 years, breakfast club provision, and the School Fruit and Vegetable Scheme for children aged 4 to 6 years. Furthermore, all food served to pupils in schools must comply with School Food Standards and be nutritious and of a high quality (DfE, 2016). Recent research on school-based food intervention programs demonstrate that they can play an important role in improving healthy eating behaviors or decreasing the body mass index (BMI) of children (Driessen et al., 2014; Van Cauwenberghe et al., 2010; Wang & Stewart, 2013). Niebylski et al. (2014) conducted a review of healthy food procurement policies in the U.S., Canada, and the UK, and findings from this review established that healthy food procurement policies can increase healthy eating behaviors across a range of settings, such as schools, hospitals, government institutions, and remote communities. Healthy food procurement policies increased the availability of healthier food and decreased purchases of food high in fat, sodium, and sugar, along with improved attitudes toward healthy eating (Niebylski et al., 2014). Furthermore, the implementation of healthy food procurement programs in schools has demonstrated enhanced food security and health benefits for children (Niebylski et al., 2014; Swensson & Tartanac, 2020).

Despite these school-based policies to encourage the intake of healthy food items, there is no universal state provision to support the nutritional needs of children during the school holidays. In the UK, schools are required to open for 190 days per year (R. Long, 2019). Thus, there are approximately 14 weeks of the year when schools are closed. It is evident that families can experience increased

financial pressure and risk experiencing holiday food insecurity when FSM provision is not available and parents resort to skipping meals or buying poor quality or unhealthy food to ensure their children are fed (Defeyter et al., 2015; Dowler & Lambie-Mumford, 2015; Gill & Sharma, 2004; M. A. Long et al., 2018; Ridge, 2002). Moreover, it is evident that some families are forced to seek emergency food provision, i.e., foodbanks, during the school holidays. While foodbank usage is considered a poor indicator and underestimates the prevalence of food insecurity (Loopstra & Tarasuk, 2015), in 2018 the national network of foodbanks, the Trussell Trust, provided 87,496 emergency three-day food parcels to children in the UK during the school summer holidays (Trussell Trust, 2019).

In response to concerns about children experiencing holiday food insecurity, community groups, local authorities, schools and faith groups have established holiday clubs in economically deprived neighborhoods to provide free food and activities to children during the school holidays. Recent research on holiday provision has demonstrated a need to support families as a result of the increased financial hardship and risk of isolation during the school holidays (Graham et al., 2016; Mann et al., 2020) and identified a range of social, wellbeing, and health benefits for attendees (Defeyter et al., 2015; Graham et al., 2016; Holley et al., 2019; Morgan et al., 2019). More recently, governments across the devolved nations of the UK have pledged funding to support programs of holiday provision, albeit these funding initiatives vary in scale and are not evenly distributed among disadvantaged communities (Mann et al., 2018). For example, the DfE provided funding of £9m in 2020 for a Holiday Activity and Food Program to support holiday provision during the six-week school summer holidays for 50,000 children across 17 areas of England. However, this falls short of the 1.3 million children eligible for FSM provision (DfE, 2019). In 2019, the Department for Environment, Food and Rural Affairs (Defra) commissioned an independent review into the UK food system to develop a national food strategy, and recommendations for establishing a food system that supports disadvantaged children were published in



August 2020. A recommendation from part one of this strategy promotes the extension of the government-funded Holiday Activity and Food Program to ensure that all children in receipt of FSM provision have access to holiday provision (Dimbleby, 2020).

In the absence of statutory funding for holiday provision, community organizations rely upon a range of networks to help deliver this provision (Mann et al., 2020; Stretesky et al., 2020). Conversely, schools use the purchasing power of local authorities or multi-academy trusts to negotiate contracts and purchase food through catering organizations. While some community organizations use catering organizations to source food and meals, many community organizations lack the purchasing power or storage facilities to benefit from bulk purchases. Thus, to purchase food and deliver holiday provision that is free to the user, community organizations have developed a range of food procurement strategies and rely on a range of networks and connections in their communities (Stretesky et al., 2020). Community organizations delivering holiday provision try to serve healthy food; however, in the absence of statutory guidelines there is variation across settings of what constitutes a healthy meal (Holley et al., 2019). A condition of community organizations to participate in the DfE-funded Holiday Activity and Food program as well as some regional holiday provision schemes is to provide food that complies with School Food Standards. Nevertheless, there is currently no statutory obligation for providers of holiday provision to adhere to national food standards, and how food is sourced and prepared at holiday clubs is a public health concern. The aims of this paper are to fill the gap in the literature and investigate how holiday clubs source food for their holiday provision and the challenges of procuring food and delivering meals to children living in disadvantaged neighborhoods, and inform future delivery of holiday provision programs.

## Applied Research Methods

### *Kitchen Social*

The current study reports findings from data col-

lected during an evaluation of holiday provision in London operated by the Mayor's Fund for London's program of holiday provision, "Kitchen Social." Kitchen Social was launched in 2017 in response to child poverty rates in London and the challenges faced by low-income families in accessing affordable, healthy food during the school holidays (Mayor's Fund for London, 2019). London has the highest rates of poverty compared to other English regions, and in 2017/18, 37% of London's children (approximately 700,000) were living in poverty (Leeser, 2020). Community organizations participating in the Kitchen Social program of holiday provision are referred to as holiday hubs. During the summer of 2019, Kitchen Social supported 53 community organizations to deliver holiday provision across London from 78 holiday hubs. Holiday hubs receive funding from Kitchen Social to contribute toward the cost of food and activities at their hub. The hubs are located in disadvantaged neighborhoods and offer a universal, free holiday program to children living locally. Over two-thirds of Kitchen Social hubs ( $N=59$ ) are located in the top 20% of the most deprived neighborhoods in England according to the 2019 Income Deprivation Affecting Children Index (IDACI), a subset of the English Indices of Deprivation 2019 that measures the proportion of all children under the age of 16 living in income deprived families (Ministry of Housing Communities & Local Government, 2019). The holiday hubs operate from a range of settings, including community centers, schools, youth clubs and adventure playgrounds. The research team conducted an evaluation of Kitchen Social during 2018 and 2019 that included both qualitative and quantitative methods to understand the implementation, reach, dose, and fidelity of Kitchen Social's holiday provision program. The aim of this paper is to investigate one particular aspect of the evaluation: the procurement of food and delivery of meals at holiday hubs. This study is a mixed-methods design and includes analysis of management data, a survey of holiday club staff, and structured observational data.

Full ethical approval for this study was obtained from Northumbria University's Faculty of Health and Life Sciences Ethics Committee.



### ***Participants***

All staff leaders of holiday hubs participating in the Kitchen Social holiday program during the summer of 2019 ( $N=53$ ) were invited to participate in this study, and 42 hub leaders took part.

### ***Instruments and Procedure***

#### ***Online survey***

A survey, hosted by Online Surveys (formerly BOS), was distributed online and a weblink to the survey was emailed to all hub leaders. The survey consisted of a series of closed and open-ended questions designed to gather data about the Kitchen Social hubs and delivery of holiday provision. Questions focused on the challenges with sourcing food, challenges with preparing meals, the skills of staff and volunteers, and funding. The survey was active from 12 August until 24 September 2019.

#### ***Management data***

The research team and Kitchen Social designed a data collection booklet to enable hub leaders to record data on child holiday hub attendees and the number of meals served on a daily basis. A paper copy of the data collection booklet was distributed to all hub leaders, who were asked to complete the booklet on each day the hub was open during summer 2019. Hub leaders were asked to return the completed booklet to the research team via Kitchen Social by post or email. One hub did not send data to the research team, so this hub was excluded from further analysis.

#### ***Observational schedule***

A nonparticipant observational schedule was developed for the researcher to record the locations and timings of food preparation, and the delivery and serving models used in a sample of holiday hub settings. The purpose of the observation schedule was to provide further information on how food is sourced and prepared at holiday hubs and the facilities and equipment available to staff to prepare the meals. All holiday hubs were invited to participate in this observational phase of the study, and four case study sites were selected to represent the range of sites from which hubs were operating: two at

community centers, one at a youth club, and one at an adventure playground. A research information sheet and consent form were sent and completed by each of the four holiday hub leaders prior to hub visits.

### ***Data Analysis***

Descriptive statistics of survey data and management records were calculated to describe the sample and examine the procurement of food and delivery of meals at holiday hubs. Thematic analysis was used to analyze the data from the open-ended questions in the survey. The research team reviewed the responses, after which the following method was adopted: line-by-line open coding (descriptive labelling), axial coding (clustering relationships, links and associations), and selective coding (exploring key codes and variables). Data from the nonparticipant structured observations were used to explain and understand findings from the management records and hub leaders' survey and the challenges of food procurement, food storage, and meal preparation.

By adopting quantitative and qualitative methods, this study aims to provide rich, meaningful insights into the procurement of food and delivery of meals at holiday hubs.

## **Results**

### ***Descriptive Information on the Holiday Hubs***

A total of 42 hub leaders completed the online survey and represented community organizations that operate either a single-site hub ( $n=30$ ) or multiple hubs ( $n=12$ ). Descriptive data about the frequency, attendance, and meals served at the holiday hubs are presented in Table 1. On average, holiday hubs offered 14.3 days of holiday provision, approximately half the number of days of the school summer holiday. An average of 29 children attended each of the holiday hubs' sessions, with an equal split of males and females. Holiday hubs attracted a greater proportion of preschool and primary-school aged children compared to young people aged 12 years and over. In total, the holiday hubs in the current study served over 21,000 meals, and at least one meal was provided to every attendee at each session.

Descriptive data about the types of meals served at Kitchen Social hubs are presented in Table 2. The majority of hubs served lunch and over a third of hubs served two or more meals at each session. Moreover, over three-quarters ( $n=33$ ) of hubs served a hot meal at each session.

### *Food Procurement Strategies*

To cover the cost of food, holiday hub leaders used multiple food procurement strategies, including receiving weekly food donations from surplus food redistribution organizations and food aid charities; sourcing food locally from food stores and wholesalers; receiving meals prepared by local restaurants, local community organizations, or in-house catering teams; receiving produce from community food-growing projects; and/or relying on additional funding from other organizations. While the findings suggest a number of advantages of adopting these procurement strategies, hub leaders shared several challenges regarding the sourcing and provision of food that complies to the School Food Standards.

Holiday hub leaders reported the advantages of employing multiple food procurement methods: cost effective means of sourcing food; enough food sourced to ensure all children received at least one meal at a holiday hub session; brokered positive relationships with local food stores, restaurants, and community organizations; and holiday hub staff acquired skills and experience in preparing meals with food sourced from surplus food.

Hub leaders employed a variety of methods for sourcing food; in particular, they relied on regular free donations from surplus food redistribution organizations and food aid charities, which helped

**Table 1. Descriptive Statistics on Holiday Hubs (Delivery of Provision) and Number of Meals Served During the School Summer Holidays**

	(N=42)
Mean number of days hub open during summer 2019 (SD)	14.3 (7.1)
<b>Attendance:</b>	
Mean number of children attending a hub per day (SD)	29.0 (17.2)
<b>Gender:</b>	
Mean number of males attending a hub per day (SD)	14.6 (9.0)
Mean number of females attending a hub per day (SD)	14.1 (8.8)
<b>Age:</b>	
Mean number of children aged <8 years attending a hub per day (SD)	11.6 (8.9)
Mean number of children aged 8–11 years attending a hub per day (SD)	13.5 (8.4)
Mean number of young people aged 12–16 years attending a hub per day (SD)	8.2 (8.7)
Mean number of young people aged over 16 years attending a hub per day (SD)	6.7 (6.3)
<b>Meals:</b>	
Total number of meals served	21,156
Mean number of meals served at hub per day (SD)	32.8 (19.2)

**Table 2. Descriptive Information on the Number and Percentage of Kitchen Social Holiday Hubs Serving Meals (N=41 due to missing data)**

Meals served at hub	Number of hubs	Percentage of hubs
Breakfast	10	23.8
Lunch	39	92.9
Tea / Dinner	7	16.7
Snacks	6	14.3
1 meal per session	27	65.9
2 meals per session	13	31.7
3 meals per session	1	2.4

the holiday hubs to reduce their spending on food items. As noted by one interviewee, “We use the food from The Felix Project and then buy other ingredients depending on what we cook” (Hub leader 13). Attendance at holiday hubs varied on a daily basis that made planning and budgeting for food difficult. Thus, hub leaders relied upon food donations in addition to purchasing food items to ensure that they were able to feed all children and young people, particularly on days when attendance was high. An interviewee said, “With surplus food from the Felix Project and FareShare and budget from Kitchen Social, we were able to provide enough food for all attending” (Hub leader 28).

Respondents reported that they brokered relationships with local food stores, wholesalers, restaurants, catering colleges, and community

organizations to help source food and meals. By developing relationships with local food stores and wholesalers, hub leaders were able to secure discounts on their food orders: “We source our food from local shops and Halal meat from West Kensington. We get a little discount as they know the food is for the children and young people” (Hub leader 43). Six of the hub leaders reported that they outsourced the food procurement and meal preparation to a food aid charity, community organization, local restaurant, catering company, or catering college. Findings from observational records illustrated that one community center had developed a partnership with a local catering college to offer an internship for a student chef to prepare and serve all the meals at the hub. The student chef received regular visits from his tutor and gained practical experience in mass catering.

Finally hub leaders who had previously delivered holiday provision utilized their prior experience to create meal planners that children would eat and enjoy, and that could easily be adapted depending on surplus food donations. According to one interviewee, “We had challenges last year, with finding good volunteers, creating a menu that the children would eat, and the amount of time spent in the kitchen by staff to supervise the volunteers. We learnt from that and this year was much smoother. The volunteers that returned this year were now used to planning menus, and the children were more open to trying different food” (Hub leader 18). Moreover, it is evident from the observational findings that children were actively encouraged to participate in food preparation at the hubs by chopping and preparing vegetables, planning and serving meals, and offering training to young people to obtain a food hygiene certificate.

While the findings demonstrated the advantages of sourcing food from a variety of means to ensure all attendees received a meal during the holiday hub sessions, 21.4% ( $n=9$ ) of hub leaders reported challenges in sourcing food, and 31% ( $n=13$ ) experienced challenges with preparing meals. The main themes relating to the challenges of sourcing food and delivering meals were the cost of food and restricted budgets; reliance on surplus food; staffing and meal planning; and inad-

equate facilities and equipment at hub settings.

Hub leaders highlighted the issue of the cost of food: “It is expensive and the funding provided by Kitchen Social doesn’t cover the costs” (Hub leader 2). Thus, due to restricted financial budgets, hub leaders endeavored to source food from a range of sources. Although there are cost advantages to receiving and using surplus food donations, this strategy of food procurement created challenges for hub leaders. The type and quantity of donated food items varied on a weekly basis, which made it difficult for hub leaders to plan menus: “When receiving surplus food, it makes it harder to plan for your meals. We end up sometimes having to shop in supermarket stores” (Hub leader 45). Moreover, hub leaders shared the challenges of receiving inappropriate food items in their surplus food deliveries: “The Felix Project provided us with surplus food. This was excellent but occasionally the food wasn’t appropriate for making lunches with children. Our budget with Kitchen Social meant we could override this issue” (Hub leader 38). Thus, hub leaders either donated unwanted surplus food items to local families or foodbanks.

Twelve holiday hub leaders described the challenge of recruiting experienced staff or volunteers with the necessary skills to plan and prepare meals at the holiday hubs. Food preparation duties were time consuming and often in addition to the leadership and /or youth provision work that staff are recruited to undertake. Hub leaders reported that planning meals, procuring food, and preparing lunches required careful planning and were labor intensive:

The playgrounds where lunches are prepared are very busy. Occasionally, children’s issues on sites make it difficult for staff to prioritize food. However lunches were always provided. (Hub leader 38)

The lack of volunteers to assist the project. This often falls to staff to step outside of their role to support [with delivering meals]. (Hub leader 39)

Findings from observational data illustrated

that a number of staff had limited catering experience, and as a result the hub leader of an adventure playground planned all meals and purchased food every morning prior to arriving at the hub and setting up the holiday hub session. Furthermore, for many holiday hubs, fluctuations in daily attendance rates added an additional challenge for purchasing food and planning meals: “Some days we had 15 kids plus 3 staff to make a hot meal for, basically healthy and they would like it” (Hub leader 33). Many of the hub leaders reported that they followed a menu plan and endeavored to follow School Food Standards. Nevertheless, while they used these standards as a reference tool, they did not weigh food or control portion sizes. It is evident from observational data at both the adventure playground and the youth club that meals served at the hub depended on food surplus donations, and food served on Fridays tended to be leftovers to reduce food waste and save costs.

Finally, holiday hub leaders reported the issue of inadequate facilities and equipment to store food and prepare meals, which made it difficult to bulk buy food and prepare meals:

Because of limited storage space we struggle with receiving and storing fresh food donations. (Hub leader 36)

Some of our equipment is on its last legs and transporting it all around the neighborhood was a bit tricky. (Hub leader 26)

Moreover, observations from the adventure playground recorded the challenges of inadequate cooking equipment and lack of storage facilities that prevented the hub from storing a pantry of food items or storing leftover food. Consequently, the holiday hub leader was required to purchase food on a daily basis and could not benefit from bulk buying food items from wholesalers.

## Discussion

The aim of the current study was to investigate how holiday hub leaders procure food and deliver meals, and the opportunities and challenges experienced with sourcing food and delivering meals at holiday hubs to children and young people. The

findings of this study showed that holiday hubs are operating in disadvantaged communities of London and delivering free meals, often more than one meal per day, to children and young people for approximately half the number of days in the school summer holidays. Holiday hub leaders endeavored to serve healthy meals to children, and owing to limited finances, they adopted a variety of methods to procure food via food purchases and donations from food stores, restaurants, catering organizations, community food projects, food redistribution organizations, and food aid charities. Community organizations are reliant on external funding to deliver a program of holiday provision (Mann et al., 2020). Prior research on food hubs in the U.S. that aim to improve food access in disadvantaged communities indicate that these food hubs are dependent on funding and suggest a need for long-term public support for these food system initiatives (Hoey et al., 2018). Nevertheless, while holiday hub leaders sought opportunities to source food cost-effectively, the findings suggest that the hubs face numerous challenges to deliver meals that comply with School Food Standards.

The views of hub leaders in the current study lend support to previous research that the delivery of holiday provision relies on the relationships and networks of holiday hub staff (Mann et al., 2020; Stretesky et al., 2020). Holiday hub leads brokered relationships with a range of organizations, including local food producers, food suppliers, restaurants, catering organizations, and food aid charities in their communities to procure sufficient food to ensure that all children attending their holiday hub received a meal. The findings showed a range of strategies employed by hub leaders to source food, e.g., negotiated reduced prices, received weekly donated food items and surplus food donations, and in some cases outsourced the preparation and delivery of meals by using local businesses and organizations such as restaurants, community organizations, and catering colleges. In addition to developing connections and networks across the community, hub leaders reported that staff have acquired new skills and undergone training, and children and young people have been involved in the planning and preparation of meals. Thus, holiday hubs can contribute to developing the capacity

and resilience of a community by upskilling staff, volunteers, and attendees; building partnerships across sectors; and contributing to sustainable community development and resilience (Chaskin, 2009; Dale & Newman, 2008). Community resilience is an ongoing process involving collective action and collaboration to improve the social and economic situation of a community (Cavaye & Ross, 2019). In 2020, the Greater London Authority published its strategy on developing London as a resilient city and highlighted the need for interventions to increase resilience and support food security for vulnerable Londoners (Greater London Authority, 2020). Findings from this current study demonstrate that holiday hubs have the ability to align with this strategy of developing resilience in disadvantaged communities of London.

The findings from this study clearly demonstrate that community organizations can deliver a comprehensive program of food provision and activities to children and young people living in disadvantaged communities. Nevertheless, it is evident that there were challenges with procuring food and providing healthy meals: lack of statutory guidelines; small financial budgets; reliance on surplus food donations; lack of capacity and skills of staff; and inadequate facilities and equipment at holiday hub settings. Unlike school food procurement policies, where there are a framework and guidance for sourcing catering services (DfE, 2021), there is no comparable framework for community organizations to procure food and deliver meals in community settings. The mayor of London published the London Food Strategy in 2018, which recognizes that food served in local community centers and settings has the potential to reduce food insecurity and build inclusive communities (Greater London Authority, 2018). In addition, the London Food Strategy advocates that local community centers play a role in promoting a healthy and sustainable environment, and notes that this can be facilitated by participating in London's Healthier Catering Commitment (to promote healthy food items) and Sustain's Sugar Smart Campaign (a national initiative that aims to reduce the amount of sugar consumed) (Greater London Authority, 2018).

Nevertheless, the findings from the current study also show that community organizations are constrained by relatively small budgets and as a result rely on a variety of methods to secure food. These multiple procurement strategies can provide opportunities to support local businesses and organizations, reduce surplus food waste, and help to develop sustainable food environments. However, they equally created challenges for hub leaders with planning and preparing meals that comply to School Food Standards.

In recent years there has been a greater focus on the issue of food waste and, at the same time, a growth in food aid programs to support households at risk of food insecurity (Caraher & Furey, 2017). Consequently, with the need to supply food to food aid programs, these programs have been viewed as part of a solution to the issue of food waste (Riches, 2002). While these food aid programs endeavor to deliver healthy food, the reliance on food donations means that meals may not comply with nutritional guidelines or meet specific dietary needs for those who rely on them (Caraher & Furey, 2017; Tarasuk & Eakin, 2005). Prior research on school and community-based nutrition programs in the U.S. indicate that while a goal of these feeding programs is to provide healthy meals to improve the nutrition of all recipients, budget constraints mean that program operators readily accept food donations from local businesses and cannot guarantee the nutritional adequacy of their meals (Raine et al., 2003). Moreover, the unpredictability of supply and limited choice mean that surplus food reduces the ability for hub leaders to provide standardized, nutritionally balanced meals and cannot be relied upon to meet need (Caraher & Furey, 2017). While there are notable benefits of using food surplus donations to not only reduce food waste but also food costs, it raises the question of whether the use of surplus food improves the access to healthy food for children living in disadvantaged communities and addresses social justice or people's right to food (Caraher & Furey, 2017).

The provision of healthy food is an equally important factor in addressing obesity. It is evident that the poorest in society are more likely to suffer from hunger and obesity (Dimbleby, 2020;

Gois et al., 2015). Children living in the most deprived neighborhoods in the UK are three times more likely to be obese by aged 11 years compared to their peers living in the most affluent neighborhoods (Gois et al., 2015). While the mayor of London advocates healthy eating initiatives in the London Food Strategy released in 2018, the findings from this study demonstrate that further support is required for holiday hubs in terms of funding and guidelines to secure procurement of healthy food items, and that food provision is aligned with wider national strategies addressing food security and obesity. The recent publication of part one of the National Food Strategy seeks to address the inequities in the food system and ensure that the food system delivers safe, healthy, and affordable food to all, regardless of location or earnings (Dimbleby, 2020). Healthy food procurement policies can improve the availability of healthier foods for children living in disadvantaged communities; however, community organizations need a secure funding stream to ensure healthy food procurement methods as well as adequate food storage and facilities and the staff with the skills to handle perishable foods and prepare meals (Caraher & Dowler, 2007; Caraher & Furey, 2017; K. D. Raine et al., 2018).

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## Conclusion

The current findings offer a timely contribution to the research literature in this area given the National Food Strategy (Part One) recommendation that access to the government-funded Holiday Food and Activities Program be extended to all children eligible for FSM in England (Dimbleby, 2020). This study provides an important account of hub leaders' views on the challenges of procuring food and delivering meals at holiday hubs to children and young people. While there are strengths in the mixed-methods design employed in this study, it is acknowledged that these holiday hubs operate in a program of holiday provision in London and the findings cannot be generalized across the UK. Furthermore, future research is needed to explore the impact of food provision and delivery of meals at holiday hubs in terms of health and diets of children and young people. Community organizations are well positioned to deliver holiday provision in underserved communities and have the ability to broker relationships, develop networks, and upskill community members to deliver meals during the school holidays. Importantly, the findings illustrate that continued, significant government investment is required to support holiday programs to deliver nutritious meals and activities to children.



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## Cultivating Powerful Participation: Reflections from a food justice and facilitation learning experience

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### Abstract

In the aftermath of the COVID-19 pandemic and heightened awareness of systemic racism this past year, food systems practitioners are increasingly turning their attention toward the intersections of racial equity and the good food movement. Unpacking the racist history of the food system is a key step in this journey toward food justice, one

that must be followed by intentional action bridging diverse perspectives through skilled facilitation. Through a project called Cultivating Powerful Participation, the University of Minnesota Extension and food justice practitioners across Minnesota are working together to equip leaders with the necessary relationships, skills, and tools to cultivate a vision of food justice. In this reflective essay, we draw on our experiences leading this initiative to demonstrate the power and impact of approaching food justice through an action-oriented framework that equips community food justice leaders to become seasoned facilitators. Using themes and evaluation data from our program, we share promising practices and specific facilitation methods that others can adapt to embrace a justice orientation in their work.

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## Keywords

Food Justice, Pedagogy, Racial Equity, Engagement, Facilitation

## Introduction

Eric Holt-Giménez (2015) notes that “understanding why, where, and how racism manifests itself in the food system, recognizing it within our movement and our organizations and within ourselves, is not *extra* work in transforming the food system, it is *the* work” (p. 24). From the massive dispossession of land and foods of the Native Americans to the enslavement and trading of Africans to jumpstart the European-style agricultural system in the United States, we know that the U.S. food system was founded and built upon a system of racism perpetrated at the hands of White colonizers (Holt-Giménez & Harper, 2016). We also know the modern U.S. agricultural system, and the organizations like Extension that uphold that system, continue to prevent Black, Indigenous, and People of Color (BIPOC) from having the same advantages as White people (Lee & Ahtone, 2020; Montenegro de Wit, 2020). This dynamic is clearly illustrated by the disparities in diet-related diseases, access to affordable, healthy, and local foods, and, most recently, COVID-19 rates, to name a few (Nittle, 2021).

Yet, at this time of extreme polarization in the U.S., evidenced by the authors’ lived experience working to advance more equitable food systems, some practitioners still refuse to acknowledge that racism is an issue within the food system (e.g., Heeb, 2021). In addition, the authors have observed that others understand the impacts of racism on the food system in purely intellectual ways and struggle to see how it affects their daily actions and decisions. And there are still others who understand and see themselves perpetuating racist actions but don’t feel like they have the tools or relationships to do things differently.

All of this means that we need food system practitioners to understand the pernicious effects of racism within themselves, their communities, and their organizations. Cadieux and Slocum (2015) explain that creating a just food system requires us to not only have honest conversations about racism and trauma but also to redesign how

food is exchanged, to reconceive land-use practices and ownership, and to pay people a living wage. Furthermore, these authors and others argue that food justice cannot be accomplished in isolation from other sectors such as economic, carceral, and environmental justice (Sbicca, 2018). Thus, food system practitioners also need the skills and relationships to design and implement novel, complex, and collaborative solutions.

Through a project called Cultivating Powerful Participation: Food Justice Facilitation Workshops (CPP), the University of Minnesota (UMN) Extension Center for Family Development (Extension) and food system practitioners across Minnesota worked together to equip leaders with the necessary skills, relationships, and tools to cultivate a vision of food justice (UMN Extension, 2020). This essay reflects on the first two years of this effort, sharing resources we developed and key considerations for CPP facilitators and other food justice educators who may leverage our experiences and materials in their programs.

## Food Justice Pedagogy: Lessons from the Literature

Food justice is a growing field with substantial literature pointing to different aspects of its meaning, how it works, and where it’s being done. We share two definitions of food justice in the literature that we found particularly useful to ground this paper in common language and understanding of the term. However, the CPP train-the-trainer (TIT) cohort (see Overview of Cultivating Powerful Participation section below for a detailed discussion of this cohort) argued that the term should not be defined because it is as ever-changing and nuanced as communities and practitioners. They warn that defining a term like food justice is falling into the White Supremacy Culture trap of “Worship of the Written Word” because it imposes a one-size-fits-all understanding of concepts that communities should define (Okun, 1999).

Although food justice theory and practice are growing fields in the literature, there is less regarding food justice pedagogy. Valley et al. (2020) conducted a scan of sustainable food systems education (SFSE) models and determined that 80% do not contain an explicit equity lens. They call for

scholars to do more work in the field of food justice pedagogy and ask practitioners to consider making their work more explicitly anti-racist by adopting their equity competency model. The model builds on four domains: awareness of self, awareness of others and one's interactions with them, awareness of systems of oppression, and strategies and tactics for dismantling inequities.

The go-to pedagogical approach identified in the literature appears to be service-learning. Kaiser et al. (2015) provide an overview of various pedagogical approaches for teaching food justice to social work students, including service-learning, classroom resources, and discussions, as well as a "food insecurity simulation" activity. Aftandilian and Dart (2013) go deeper into the service-learning approach by providing best practices for garden-based service learning from three projects that took place in Fort Worth. Another article focused on the service-learning approach discusses how volunteers built "strong civic virtues and critical perspectives" by participating in urban agriculture programs in Canadian community food centers (Levkoe, 2006, p. 90). Although service-learning is a model widely used in higher education, some question its effectiveness as a tool for teaching social justice. They critique its potential to extract learning from minority communities rather than provide authentic support to important causes (Butin, 2007).

There are a few models in the literature that go beyond service-learning. Neiman and Schroedel (2019) discuss their four pedagogical themes for students in an alternative learning setting, including (1) an introspective understand-

ing of racism, (2) democratizing the classroom, (3) building trusting relationships, and (4) leveraging social capital into political capital. Brown et al. (2020) share their immersive learning experience called "The History of the Land" that they lead at Grow Dat Youth Farm in New Orleans. Brown and colleagues show how offering youth the opportunity to connect with the land fosters food justice values. The workshop includes small group activities, a walking tour, and conversations that explore the history of oppression tied to a particular piece of land in New Orleans. The workshop concludes by imagining how the land could be used in the future, and a conversation connecting how what they've learned could impact their daily choices and experiences. Thus, the authors argue, "while learning the history of the land is essential to understanding the spatial and social configurations of contemporary foodscapes, the result is a point of departure rather than an end, a beginning from which to envision alternate futures of radical food geographies" (p. 250).

In this reflective essay, we seek to add a novel pedagogical approach to food justice to the literature. We show how the program builds off core tenets—relationship development, participatory processes, and action-orientation—in the literature. We also share the ideas that make this program unique, such as focusing on practitioner participation (rather than students), centering community voices in all stages of the program, creating warm and welcoming learning environments, and anchoring facilitation skills in topics participants are passionate about—food justice. Our hope is for readers to apply or adapt the offerings shared in this

### **Food Justice Definitions in the Literature**

"We characterize food justice as ensuring that the benefits and risks of where, what, and how food is grown and produced, transported and distributed, and accessed and eaten are shared fairly." (Gottlieb & Joshi, 2010, p. 6)

"Food justice is the right of communities everywhere to produce, process, distribute, access, and eat good food regardless of race, class, gender, ethnicity, citizenship, ability, religion, or community. Includes:

- Freedom from exploitation
- Ensures the rights of workers to fair labor practices
- Values-based: respect, empathy, pluralism, valuing knowledge
- Racial Justice: dismantling of racism and white privilege
- Gender equity"

(Institute for Agriculture and Trade Policy [IATP], 2012, para. 7)

article or take away lessons to improve their pedagogical approach to food justice.

## Overview of Cultivating Powerful Participation

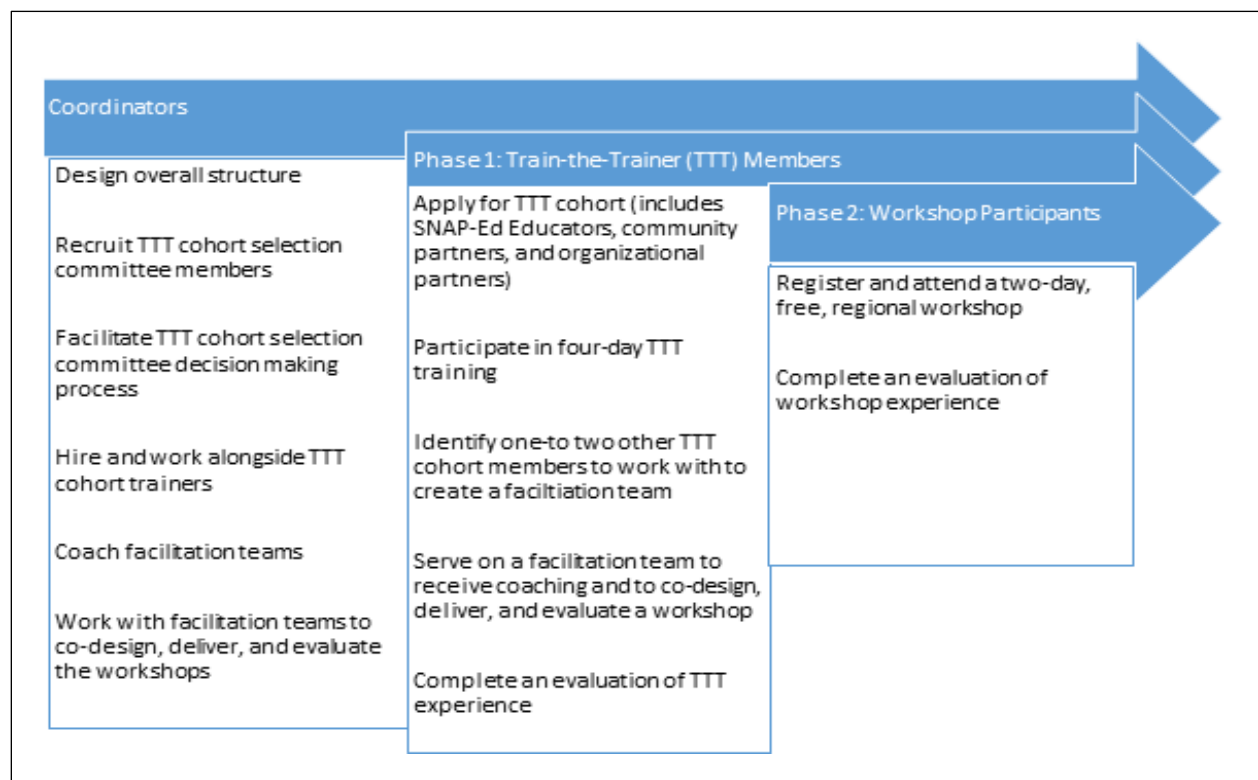
The first round of the CPP program was launched in August 2019 by the University of Minnesota Extension Center for Family Development (Extension). The purpose of this version of CPP was to support Supplemental Nutrition Assistance Education (SNAP-Ed) staff to facilitate food justice work in their communities. The program's overall structure was designed and coordinated by three Extension staff (two of whom are authors of this article) partially funded by SNAP-Ed. The coordinators identify as cis-gendered, heterosexual, White women. These coordinators have taken several facilitation training sessions. Together they bring many years of experience in facilitating and delivering highly participatory, community-driven, food justice programs across MINNESOTA. These skills were used to design the original CPP pro-

gram, which took place in two phases (outlined further in the following subsections and Figure 1). In phase one, a diverse group of SNAP-Ed staff and community and organizational partners participated in a unique train-the-trainer (TTT) cohort program. In phase two, the participants of the TTT cohort broke up into smaller facilitation teams to lead eight regional workshops across the state with other SNAP-Ed staff and community and organizational partners.

### Phase 1. Train-the-Trainer

The first phase was designed similarly to a typical train-the-trainer (TTT) program (Cserti, 2020). A group of participants is trained on how to implement a program or curriculum, in this case, to facilitate food justice facilitation workshops in their communities. However, the goal for CPP was for participants to gain skills as facilitators and apply them to co-create the workshops they would later offer to their communities. This model was chosen to (1) provide a deep learning and networking

**Figure 1. Cultivating Powerful Participation: Food Justice Facilitation Workshops (CPP) Roles and Responsibilities**



experience to a cohort of passionate food justice leaders across Minnesota, (2) to co-create workshop agendas with participants who are representative of the diversity of needs in areas of the state with the greatest food injustice, (3) to create a sense of identity and belonging at the workshops by identifying facilitators who represent the communities served, and (4) to invest in community partners that Extension wanted to work more closely with to advance food justice efforts across Minnesota.

The coordinators developed an application process to recruit the TTT cohort, targeting half community partners and half SNAP-Ed staff. The application for the TTT cohort was disseminated through food-focused and Extension listservs along with personal emails sent to grassroots food system leaders and SNAP-Ed staff. Altogether, there were 22 applicants from organizational and community partners and 10 from within SNAP-Ed. Organizational and community partners were offered US\$45/hour for their time spent learning together and designing, implementing, and debriefing the experience. SNAP-Ed staff was not compensated financially beyond their salary, but they were provided relief from some of their other obligations to focus more fully on this professional development opportunity.

To eliminate bias in the selection process as much as possible, the coordinators recruited a diverse selection committee to choose cohort participants. The committee members were recruited from within Extension and from social justice leaders the coordinators had relationships with in the community. Each selection committee member reviewed and scored each application using a common scoring rubric, which included scoring for applicants' level of experience with both facilitation and food system work, what attracted them to the program, and their professional and lived experience working on social justice. All selection committee members were provided with a short training on how to use the rubric.

Using the rubric scores and consideration for racial and geographic diversity, the coordinators facilitated a consensus-building process to support the selection committee in determining TTT cohort participants. In the end, the committee

selected seven candidates from organizational and community partners and seven from within SNAP-Ed, creating a TTT cohort of 14 participants. The cohort was diverse in a variety of ways, including 65% BIPOC representation. In addition, two of the cohort participants are also authors of this essay who work in different Extension centers than the coordinators; one identifies as Anishinaabe Ikwe (an Ojibwe woman) and the other as a White non-binary transgender person.

The coordinators hired three racially diverse facilitation experts to lead the TTT cohort through a four-day training in the Fall of 2019. The coordinators worked alongside the trainers to focus on food justice while also participating in the training. Each day included activities where participants learned about a facilitation method and then experienced that method through a lens of food justice. Each activity concluded with a facilitated discussion to help participants apply and teach others the method in their work and community (practices are described in greater depth in the CPP in Action section).

At the end of the four-day TTT cohort training, participants self-organized into facilitation teams of two to three participants and one coordinator based on identities, interest, and geographic representation, for a total of eight teams. Each facilitation team designed and implemented one workshop in their geographic region of the state for a total of eight workshops. During workshop planning, the coordinators served as coaches and organizers of the facilitation teams. Coordinators coached the small teams for anywhere from four to 20 hours, depending on their needs. The facilitation teams shared their agendas and insights over email and shared documents, so they could learn from each other as the planning and implementation of the workshops unfolded (see Appendix A for an example workshop agenda).

## **Phase 2. Workshops**

During the second phase of CPP, facilitation teams lead free two-day workshops for participants to learn and practice how to facilitate food justice work in their communities. The purpose of the workshops was to help participants: (1) engage across differences (e.g., race, geography, sector), (2)

build a diverse network of relationships, (3) gain a greater understanding of food justice through interactive and engaging facilitated conversations, and (4) advance participants' ability to do food justice work by using equity-based facilitation practices.

The two-day workshops took place from November 2019-February 2020. The workshops were offered at no cost and marketed broadly using the same mechanisms as the TTT cohort applications, with a target audience of food systems practitioners interested in advancing food justice. The facilitation teams also encouraged participation through local marketing in their communities. On average, 25 participants attended each of the workshops, with 214 total participants.

The average workshop participant demographic breakdown included about 30% community partners (food system practitioners not associated with an organization), 40% organizational partners, and 30% SNAP-Ed staff. The racial diversity of participants varied by location due to the demographics of Minnesota. For instance, all the metro workshops had about 50% BIPOC participation, whereas most workshops in rural Minnesota had about 20% BIPOC participation. One workshop took place at an Indigenous community center in rural Minnesota and included almost 100% Indigenous community participation. The workshops had the same general format as the TTT cohort training. Participants learned about facilitation methods, then experienced the method with a food justice lens, and concluded with a discussion about the value and utility of the method in advancing food justice in their communities.

### **CPP in Action**

Now that we've described the overall structure and framework for CPP, let's examine what the program looked like in practice. Both the TTT cohort training and workshops included various activities: icebreakers, active breaks, time for silent reflection, conversations on what it means to be a facilitator, and other creative activities. In this section, we share a variety of practices drawn from the authors' personal experiences that we believe were critical to the program's success. See Appendix A for a more detailed look at a workshop agenda.

### **Practice #1: Sequence Questions to Guide Deeper Reflections**

The facilitation method of Focused Conversation or ORID (an acronym for Objective, Reflective, Interpretive, and Decisional) was taught at the TTT cohort training and workshops to help participants gain a deeper understanding of food justice (ICA International, 2015). The ORID method sequences questions in a way that uses the body's natural way of processing information to induce participants toward greater critical thinking. To get workshop participants on the same page about the food injustices prevalent in Minnesota and how food justice and facilitation are connected, the three metro facilitation teams used ORID to start each workshop. They first had participants form small breakout groups of five to six people, read a list of food injustice data relevant to Minnesota, then discuss their reactions using the following sequence of questions:

- "What stuck out to you when you read these food injustice facts?" (Objective)
- "What was your gut reaction to these facts?" (Reflective)
- "What would a just food system look like to you?" (Interpretive)
- "How could we use the skills we're learning in this workshop to advance this vision of food justice?" (Decisional)

Each time this method was taught, trainers and facilitators helped participants see how meetings are often structured to ask participants to make decisions without supporting their ability to process information effectively before making these decisions. Participants reflected how more comprehensive and creative decision-making processes could be if this method were used more often. Informant feedback from workshop participants has consistently pointed to ORID as valuable because of its wide applicability and ease of use to create deeper engagement in meetings.

### **Practice #2: Hone Listening as a Critical Skill**

Another facilitation method taught in both the TTT cohort training and the workshops is the



*Reflective Listening Technique* developed by The Compassionate Listening Project (2013, p.6). In this method, participants split into groups of four people and rotate roles between storyteller, listener for facts, listener for feelings, and listener for values. The storyteller responds to a deeply introspective prompt, such as “Share a story of a time when you acted with courage in your food justice work,” while the others listen deeply for a different aspect (facts, feelings, values). Afterward, the listeners reflect on what they heard from the storyteller. Each time this method was done, participants noted how valuable it was to feel seen and heard in the storyteller role and to understand how to listen more wholeheartedly. Each time, the trainers and facilitators helped to highlight that to advance food justice, we need to listen fully to community needs, people who see things differently than us, and each other.

### **Practice #3: Use Cues to Support Experiential Learning**

The TTT cohort training and workshops addressed topics like oppression, land access, racism, and cultural appropriation through a deeply personal and introspective approach by using cues and questions. Cues were most often used to differentiate between “learner” and “participant” modes. The facilitators made sure participants knew they were in “learner mode” as they were first taught a facilitation method (i.e., how the method works, when to use it, when not to use it, how many people to use it with, and the average length of the experience). Then the facilitators provided cues to the participants, so they knew they were entering into “participant mode” as they engaged in the method with a lens of food justice (similar to what was described in Practice #1 and #2) and debriefed what they had learned from their experience. Then facilitators provided cues for them to come back to “learner mode” to debrief their experience with the method and think about how they could apply it to their food justice work.

### **Practice #4: Lean on Shared Agreements in Times of Tension**

The TTT cohort training began with co-creating shared agreements or guidelines for how partici-

pants wanted to engage with one another. For example, one agreement was to “stay in relationship with each other even when it gets hard.” This agreement was critical for the group to self-manage tension that surfaced when learning the “fishbowl” method. In this activity, three to six people sit in an inner circle and dialogue about a topic while a larger group of participants sits around the circle and listen. All participants can move in and out of the inner circle, and there is always one spot open for someone to join the inner circle (McCandless, n.d.-b).

The Fishbowl activity took place on the third day of the TTT cohort training when the group was ready to dig into tough topics related to food justice. The focus of the activity was on power, and the conversation evolved to cover a range of topics from spiritual oppression to land access to the concept of colorism. The conversation became quite emotionally charged at one point, so the trainers chose to pause the conversation and give everyone a break. The trainers reconvened the participants with a reminder of the shared agreements they had co-created at the beginning of their time together. The resulting sense of group accountability enabled the cohort to work through a difficult moment and stay in a relationship with each other. As a result of this experience, every facilitation team designed their workshop agendas to begin with the co-creation of shared agreements and consistently referenced the agreements throughout the workshops when necessary.

### **Practice #5: Tend to Comfort and Belonging**

The authors identified (through evaluation data and personal experience) a list of small but important details they believed helped create a welcoming and safe space for workshop participants to learn, be vulnerable, and dig deep into their experiences. These details started before the workshops even began; for example, facilitation teams carefully selected locations and food vendors, considering the cultural context of participants. Workshops were often held in community centers accessible by bus. All workshop locations were also chosen to have enough unobstructed wall space to hang posters and art murals and share notes on large sticky paper. The food vendors were sourced from small

BIPOC-owned establishments. Additionally, each facilitation team sent a “welcome letter” to participants to prepare them for what to expect in the workshops and help them feel ready and grounded.

Other details that supported a welcoming learning environment were in how the space was set up. Every workshop included a resource table with a “hospitality kit,” which included tissues, cough drops, and headache medication, as well as healthy snacks, water, coffee, and a supply of books the facilitators recommended. All workshop tables included fidget toys, art supplies, paper for taking notes or doodling, and a centerpiece. Each facilitation team created a playlist specific for their workshop and played music during breaks and reflection times. Lastly, all workshop participants received a binder that included food justice information and resources, a one-page overview of each facilitation method taught at the workshop, and reflection guides. All contents of the binder can be found hyperlinked within Appendix A.

### Applied Research Methods

This study uses a mixed-method phenomenological approach to better understand CPP participant experiences surrounding the central phenomenon of food justice pedagogy. According to Creswell and Poth (2018), phenomenological research is

conducted to “reduce individual experiences with a phenomenon to a description of the universal essence.” To collect data that assessed the impact of participant experiences, the authors conducted a reflective Post-Cohort Evaluation, a Post-Workshop Evaluation, and a Nine-Month Follow-up Evaluation of participants (Table 1).

The CPP coordinators developed each evaluation in partnership with the Extension Center for Family Development Applied Research and Evaluation team (ARE). The Nine-Month Follow-Up was developed by the authors of this article and the ARE team. Upon completing the UMN Human Research Determination form, we ascertained the project did not require IRB approval due to its focus on quality assurance.

Using inductive coding (Heit, 2000), the authors first independently identified themes in the evaluation reports from the two Qualtrics surveys and the field notes from the facilitated discussion. Then they came together to discuss emergent. Data was imported from the three evaluations into MindMup (version 2, 2017) software to represent the emerging codes visually. From there, the authors used the software to collaboratively sort and combine the codes to identify five emergent themes that helped make the learning experience positive and impactful.

**Table 1. Evaluation Overview**

Indicators	Reflective Post-Cohort Evaluation	Reflective Post-Workshop Evaluation	Nine-Month Follow-Up Evaluation
<b>Purpose</b>	To better understand what worked well, what could have been improved, and how the TTT experience impacted cohort members' ability to do food justice work.	To better understand what worked well, what could have been improved, and how the workshop impacted workshop participants' ability to do food justice work.	To build a greater understanding of the long-term impacts on participants' level of connection to other participants, knowledge and skill retention, and actions taken to advance food justice since participating in the workshops.
<b>Date completed</b>	February 2020	Within two weeks of completion of the workshop	September 2020
<b>Completion Rate</b>	85% (12 of 14 participants)	78% (166 of 214 participants)	42% (90 of 214 participants)
<b>Methodology</b>	Group discussion (virtual) facilitated by the coordinators	Qualitative evaluation	Qualitative evaluation
<b>Questions (Appendix B)</b>	Six open-ended questions	Mix of Likert scale and open-ended questions	Mix of Likert scale and open-ended questions
<b>Evaluation Software</b>	Zoom and Google Documents	Qualtrics	Qualtrics

## Reflections on the Themes

In this section, the authors offer reflections on the themes they identified from the evaluation data and use information from their personal experiences and field notes to help illustrate the impact of these themes, which include:

- Focusing on building relationships and forging connections across differences provides fertile ground to build together.
- Having community at the core of creation and implementation helps workshop participants feel comfortable to engage more fully. This may be especially true for BIPOC participants.
- Paying close attention to detail when curating the workshop environment helps to create a sense of belonging within the participants.
- Having participants learn by doing helps them feel more confident in utilizing the skills they built in the workshops.
- Anchoring facilitation skills in a topic of relevance to participants help make the skills more readily accessible.

### *Theme #1: Focusing on Building Relationships and Forging Connections Across Differences Provides Fertile Ground to Build Together.*

The evaluation results indicated that relationships were vital to participants' experience in the CPP program, which supports the centrality of relationships in food justice pedagogies in the current literature. The data from the Post-Cohort Evaluation suggested that the depth of relationships built in the TTT cohort experience was impactful in building confidence and effectively facilitating workshops. As the authors reviewed the Post-Cohort Evaluation results and continued to receive informal feedback about the depth of relationships built at the workshops, they decided to include specific

"What is most exciting for me is that we came together from across the state... [we] built relationships and opportunities and connections statewide. This creates fertile ground to build together." (Post-Cohort Evaluation)

questions in the Nine-Month Follow-Up Evaluation ( $N=90$ ), which showed positive value to participants' experiences:

- 92% agreed that relationships were important to their learning experience.
- 79% agreed they felt more connected to others working in food justice in their area.
- 70% agreed they have new relationships they otherwise would not have built.
- 65% agreed the relationships they built have helped them improve their work.

We believe these results appear particularly positive considering that COVID-19 forced most CPP participants to work virtually and henceforth limit contact with each other shortly after attending the workshops. For example, one Black community member from the Near North neighborhood in Minneapolis noted that "I feel loved and not alone as I have created a network of people to love and know me and I get to know and love them too!" (anonymous workshop participant, personal communication, August 20, 2020). We believe messages like this indicate the relationship development did not have a transient or false depth due to the impacts of COVID-19.

"I made some really great connections with other attendees! I work on food systems issues and was able to connect with people who work on transportation ... and partners who work on hunger. I also made personal connections talking about family and background with people of other races." (Post-workshop Evaluation Respondent)

### *Theme #2: Having Community at the Core of Creation and Implementation Helps Participants Feel Comfortable to Engage More Fully. This May be Especially True for BIPOC Participants.*

This theme appears to be new to the food justice pedagogy literature but not new at all to justice movements. Going back to Freire's (2014) *Pedagogy of the Oppressed*, justice-based work is founded on the values of co-creating with those who are most impacted. The Post-Cohort Evaluation data suggested that centering community in all aspects of

the project may have been particularly helpful for the BIPOC workshop participants. In aggregating the Nine-Month Follow-Up Evaluation data by racial identity, we found no noticeable difference in responses. We believe this is a positive sign, indicating that BIPOC participants were equally engaged and got as much out of the workshops as their White counterparts, which may not always be the case in mixed-race, justice-oriented training (Griffin, 2021).

“Education must begin with the solution of the teacher-student contradiction, by reconciling the poles of the contradiction so that both are simultaneously teachers and students.” (Freire, 2014, p. 52)

Feedback indicated that one factor contributing to the strong workshop engagement was having facilitator teams that represented the diverse regional demographics of workshop participants. For example, at one workshop in rural Minnesota, there was a Colombian immigrant on the facilitation team, three Colombian immigrant participants, and at least 10 Latinx participants. While this workshop was held in an area of the state where the immigrant population may not always feel comfortable attending mixed-race educational offerings (Bushway, 2001), the facilitator reflected that “the workshop . . . was a great success, especially for the Latino and Somali community. There were great conversations about how they felt taken into account.”

Another example comes from a workshop hosted at a Native American-focused workforce development center. One of the facilitation team members and an author of this article had a close relationship with this center. As a result, the attendance of the workshop was almost 100% Native American clients of this organization, which likely would not have occurred without the relationship with the facilitator. Additionally, there were two workshops held in the Near North, Minneapolis, and Rondo, St. Paul neighborhoods, both of which have a high Black population and experience the legacy impacts of racial covenants, redlining, structural racism, and a healthy mistrust of university researchers (Kaul et al., 2019; Scharff et al.,

“I thought it was pretty remarkable how quickly people opened up and were ready to share. That's not usual, so I've got to believe it's attributable to the facilitation making people feel comfortable.”  
(Post-Workshop Evaluation Respondent)

2010). Despite this legacy, at least eight participants (of the 25) at each workshop were community members not associated with or paid to attend by an organization. We believe these people would not have participated if it wasn't for the facilitators' connections to the neighborhoods, but we cannot confirm this assumption in the evaluation data.

### *Theme #3: Paying Close Attention to Detail When Curating the Workshop Environment Helps to Create a Sense of Belonging Within the Participants.*

The importance of attention to detail emerged from the evaluation data. The trainers who led the TTT cohort training were skilled in the “Art of Hosting (AOH),” a leadership training that teaches facilitation skills, systems thinking, and innovation practices (Art of Hosting, n.d.). Part of the AOH training teaches leaders to create warm, inviting spaces. The TTT cohort talked about how the thoughtfulness of the trainers in setting up the learning environment made them feel like they “belonged” and mentioned that “the small things really mattered.”

As a result, the facilitation teams applied this same attention to detail in designing and implementing the workshops (as referenced in Practice #5 of the CPP in Action section). The authors flagged 82 out of 243 responses in the Post-Workshop evaluation that pointed to the value of the facilitation teams paying close attention to detail and creating a welcoming environment for workshop participants to learn. For example, one workshop participant noted that “I honestly think that the facilitators anticipated the needs of participants when planning this workshop. Adequate breaks, good food, moving around the room, not very much lecturing, learning from others; all of these aspects made it a positive learning experience.” There were even 12 comments specific to the importance of the binder of printed workshop

materials provided to all participants. Ultimately, 96% of respondents of the Post-Workshop evaluation (N=166) agreed that the facilitators of their workshop did a great job of creating a welcoming environment for learning.

***Theme #4: Having Participants Learn by Doing Helps Them Feel More Confident in Utilizing the Skills They Built in the Workshops.***

Another common theme identified in the data was the value of the “learner vs. participant mode” approach for participants (discussed further in Practice #3 of the CPP in Action section). In the Post-Workshop Evaluation, one participant noted,

The environment created was incredibly conducive to all kinds of learners. There was an access point for each participant to engage with the materials, practice their skills and think deeply about how to apply what they learned. The training did an excellent job of both presenting the skills and tools and providing overarching discussion and practice in how those skills are applied in real time. They ‘walked the walk’ while ‘talking the talk’ which set an amazing example and allowed for deeper learning.

Many participants in the Post-Workshop Evaluation echoed this sentiment; the authors flagged 62 of 243 responses that highlighted how “learning by doing” helped participants understand the workshop concepts more fully. Nearly all (97%) respondents (N=166) noted improvement in their confidence in facilitating food justice conversations, with the degree of improvement divided between somewhat (41%) and very much (56%). Over 100 comments discussed how respondents were already utilizing their skills in their work just weeks after participating in the workshops. The knowledge and skills gained through the workshop seemed to be retained, as evidenced by several indices in the Nine-Month Follow-Up Evaluation (N=90):

- 86% of respondents somewhat or strongly agreed that the meetings or events they’ve led since the workshops are more engaging

*(participants look forward to attending and feel like their voices have been heard.)*

- 77% of respondents somewhat or strongly agreed that they have supported others in planning and implementing more engaging meetings or events.
- 82% of respondents somewhat or strongly agreed that they bring a stronger lens of justice to their work (*antiracism, disrupting systems, focusing on diversity*)
- 69% of respondents somewhat or strongly agreed that they engage a more diverse audience in their work.

Again, we see these results as particularly positive, considering most workshop participants had to switch to working remotely and learn how to transfer their new skills to a virtual audience due to the COVID-19 pandemic.

***Theme #5: Anchoring Facilitation Skills in a Topic of Relevance to Participants Helps Make the Skills More Readily Accessible.***

We believe this is another new contribution to the food justice pedagogy literature. To our knowledge, there has never been a workshop that taught facilitation skills rooted in the topic of food justice. Three comments in the Post-Workshop Evaluation spoke specifically to the power of rooting facilitation training in food justice, which was particularly important to the authors. Each of the three respondents noted that they had attended many facilitation trainings and social justice or racial equity trainings but that the merger of the two concepts made this workshop more impactful than any other they had previously attended. These comments, combined with the Nine-Month Follow-Up Evaluation results, which suggest a positive, sustained growth in the skills and knowledge of work-

“I like that these facilitation methods were grounded in a specific topic—previous facilitation trainings I have attended have all been about facilitation, and less on the subject matter. To me, this was definitely a more meaningful way to learn about facilitation while also meeting with like-minded folks doing similar work.” (Post-Workshop Evaluation)

shop participants, helped the authors understand the added value of teaching facilitation skills to groups of individuals who share a common passion, such as food justice.

- 100% of respondents somewhat or strongly agreed they had a greater understanding of the concept of food justice.
- 92% of respondents somewhat or strongly agreed they felt more equipped to engage in food justice work.
- 93% of respondents somewhat or strongly agreed they had a greater understanding of the different tools available to engage audiences in effective meetings.
- 92% of respondents somewhat or strongly agreed they felt more equipped to lead effective meetings.

### *Putting It All Together*

We believe these five themes contributed to this learning experience's positive impact in equipping participants with relationships and skills to improve their food justice work. The actions participants outlined they have taken in the Post-Workshop Evaluation and Nine-Month Follow-Up Evaluation were numerous. Actions range from leading a group to develop their 2020 sustainable regional food system plan to more effective board meetings, staff meetings, and community gatherings to addressing Tribal food sovereignty issues to improving personal relationships.

### **Areas of Growth**


Although the evaluation results and participant feedback were positive, some themes emerged for growth areas for the program from the Post-Workshop Evaluation. The most common critique of the workshops was that participants wanted more time for silent reflection (12 out of 243 comments). As a result of this feedback from early workshops, facilitation teams adapted their agendas for later workshops to include more time for silent reflection. Even with the adaptations, though, workshop participants still wanted more time for silent reflection. Workshop participants also wanted more topics that addressed facilitating through tension (6 of

243 comments). For instance, some suggested the addition of techniques for conflict resolution or how to address people who talk too much in meetings. Lastly, some participants (4 out of 243) noted confusion around workshop content. Some were surprised to find out that the workshops were so heavily focused on facilitation skill-building. We believe this points to the need for further clarity in the initial marketing and communications about the program's learning objectives.

In addition to the areas of growth identified in the evaluations, we reflected as a core team on steps that could be taken to improve future offerings. For example, we believe the program could go a step further in bringing stakeholders together to design food justice programs. The two-day workshops could include an additional third day of gathering where participants co-create action plans specific to their communities' needs, such as policy campaigns, cooperative farming models, urban land access, etc. Finally, we are currently designing the next round of CPP to take place virtually, which creates a whole new set of challenges in building trust and hosting difficult conversations without the enhanced personal connections best achieved through face-to-face interaction.

### **Conclusion**

The Cultivating Powerful Participation program has proven to be a transformative model for Minnesota communities, Extension, and food system practitioners. It is novel in its marriage of food justice concepts with practical skill-building. The insights and examples shared here can help other food systems practitioners better understand the intersection of race and food and take collective action to dismantle oppressive systems that perpetuate food injustice. The practices and themes examined here demonstrate the need for practitioners to invest more deeply in facilitation, co-creation, and relationship development as vital skills for food justice work. By providing a detailed recounting of the design, outcomes, and stories from this experience, we hope others will be similarly transformed in their efforts to advance food justice in an authentic way that places community at the very center.



## Acknowledgments

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## Appendix A: Sample Agenda for Cultivating Powerful Participation Workshop

All resources mentioned in this agenda can be found in this open-source Google Drive folder:

<https://drive.google.com/drive/u/1/folders/1t4PRD0Cmb30IewMjBWW1zwEME9wdopq7>

### Day 1

Time	Activity/ Method	Description	Purpose	Lead
7:30–8:30	Set-Up	Set up all tables, Hang all posters, Set up snacks and beverages, Set up hospitality kit, etc.	To make the space feel warm and welcoming when participants arrive	Everyone
8:30–9:15	Participant Arrival	Welcome participants as they arrive  Provide directions to get comfortable, have a snack, find a spot at a table, network, and start drawing their food story with the art supplies at their tables.	To help all participants feel welcome as they arrive and to start getting people to think outside of the box from the beginning	Everyone
9:15–9:30	Welcome / Opening	Overview of goals, objectives, and agenda  Emphasize the learner v participant mode and the importance of rooting facilitation skills in the topic of food justice  Provide a land acknowledgment	To orient people to the physical space, the hopes we have for our time together, and why we want to talk about facilitation and food justice in the same gathering	Facilitator #1 and #2
9:30–10:00	Opening Activity	Opening Circle: We'll go around the circle, share name, pronoun, organization (if applicable), & one thing you want us to know about your relationship to food justice in three sentences or less	Get to know people and understand what drove them to attend	Facilitator #3
10:00–10:20	Shared Agreements	Introduce and co-create Shared Agreements	Collaborative effort to co-create the type of space they want to create together.	Facilitator #4
10:20–10:35	Break			
10:35–11:55	World Cafe + ORID	Introduction to World Cafe (learner mode)  Activity: (participant Mode) <ul style="list-style-type: none"> <li>• Round 1: What sticks out to you about these food injustice facts? (Refer to Facts Sheet)</li> <li>• Round 2: What would a just food system feel like to you?</li> <li>• Round 3: What does facilitation have to do with creating a just food system?</li> <li>• Round 4: How do you plan to use these skills to fight for food justice in your work?</li> </ul> Harvest Conversation: <ul style="list-style-type: none"> <li>• What stuck out to you as powerful in this conversation?</li> </ul>	To get people grounded in the idea of justice and the connection to facilitation.	Facilitator #1

*Day 1 continues*

*Day 1, continued*

Time	Activity/ Method	Description	Purpose	Lead
11:55–12:10	World Cafe Debrief	Brief reminder of World Cafe basics (back to learner mode)  Debrief Conversation (popcorn): <ul style="list-style-type: none"> <li>• What questions do you have about the method?</li> <li>• What did you think of this method?</li> </ul> Silent Reflection in Journal on Method	Give participants a chance to reflect, think about application, and take notes.	Facilitator #1
12:10–1:00	Lunch			
1:00–1:30	ORID	Overview of ORID and how it was snuck into World Cafe experience (learner mode)  Activity: (participant mode) Create a list of 4 questions based on the following purpose: "Imagine you were a part of a team that hosted a community gathering to help understand their needs related to food justice. You come back together with the hosting team to talk about next steps. What questions could you ask using the ORID method?"  Harvest Conversation: <ul style="list-style-type: none"> <li>• How did it feel to craft your questions in this way? (pair share)</li> <li>• How could you use this method in your work? (small group)</li> <li>• What do you think about this method? (large group)</li> </ul> We actually just practiced another facilitation method called 1-2-4-All!	To explain that we <i>also</i> used ORID during our World Cafe and how it can be used as a tool to help make decisions.	Facilitator #2
1:40–2:35	Reflective Listening	Introduction to Reflective Listening (learner mode)  Activity: (participant mode) <ul style="list-style-type: none"> <li>• Break into groups of 4 &gt; 1 Speaks, 3 Listen &gt; 1 listens for facts, 1 listens for emotions, 1 listens for values &gt; 6 min talk / 4 min reflection (1ish min each) &gt; each person has a chance to present and listen in different ways</li> <li>• Question: How has courage shown up in your work in the food system / food justice?</li> </ul> Harvest Conversation: <ul style="list-style-type: none"> <li>• How did it feel to share your story with others?</li> <li>• How did it feel to listen for facts?</li> <li>• How did it feel to listen for emotions?</li> <li>• How did it feel to listen for values?</li> </ul>	To have people share through storytelling and learn to listen with their whole selves as they move through the rest of the workshop.	Facilitator #3

*Day 1 continues*

**Day 1, continued**

Time	Activity/ Method	Description	Purpose	Lead
2:35–2:50	Reflective Listening Debrief	Brief reminder of Reflective Listening basics (back to learner mode)  Debrief Conversation (popcorn): <ul style="list-style-type: none"> <li>• What questions do you have about the method?</li> <li>• What did you think of this method?</li> </ul> Silent Reflection in Journal on Method	Give participants a chance to reflect, think about application, and take notes.	Facilitator #3
2:50–3:00	Movement Break (Entourage)	Provide instructions and do it with enthusiasm	To help wake people up and get them out of their heads.	Facilitator #1
3:00–4:10	Round Robin	Introduce Round Robin as a Method (learner mode)  Activity: (participant mode) <ul style="list-style-type: none"> <li>• 20 min / table, choose 3 of 4 tables</li> <li>• Table #1: Visioning &amp; Current Reality</li> <li>• Table #2: Fishbowl</li> <li>• Table #3: Basics to Convening</li> <li>• Table #4: Emergence, Divergence, Convergence</li> </ul> Harvest: <ul style="list-style-type: none"> <li>• What ah-ha's are sticking with you after this whirlwind of learning?</li> <li>• What questions do you still have?</li> </ul> Silent Reflection in Journal on Method	To provide a variety of tools and ideas to help them understand how to facilitate food justice conversations.	All
4:10–4:25	Round Robin Debrief	Brief reminder of Reflective Listening basics (back to learner mode)  Debrief Conversation (popcorn): <ul style="list-style-type: none"> <li>• What questions do you have about the method?</li> <li>• What did you think of this method?</li> </ul> Silent Reflection in Journal on Method	Give participants a chance to reflect, think about application, and take notes.	Facilitator #1
4:25–4:45	Closing	Overview of what was learned  What to expect tomorrow  Circle Activity: <ul style="list-style-type: none"> <li>• Collective breathing</li> <li>• Say one word that describes how you're feeling right now.</li> </ul>	Provide space to remember, get grounded, and release any tension, fears, or overwhelm.	Facilitator #2

**Day 2**

<b>Time</b>	<b>Activity/ Method</b>	<b>Description</b>	<b>Purpose</b>	<b>Lead</b>
7:30–8:30	Set-Up	Set up all tables, Hang all posters, Set up snacks and beverages, Set up hospitality kit, etc.	Same as Day 1	Everyone
8:30–9:15	Participant Arrival	Welcome participants as they arrive	Same as Day 1	Everyone
9:15–9:35	Welcome	Same as Day 1 (no land acknowledgement)	Same as Day 1	Facilitator #1
9:35–10:05	Web of Connectedness	<p>Introduce activity</p> <ul style="list-style-type: none"> <li>• Have group gather in circle</li> <li>• Hold piece of yarn and share response to one or both questions (What is still lingering for you from yesterday? And/or What are you hopeful for today?)</li> <li>• Call someone's name and throw them the yarn.</li> <li>• Then they respond to the questions and continues until everyone has responded.</li> </ul> <p>Implement activity Debrief the activity</p> <ul style="list-style-type: none"> <li>• Reminder - we are not alone, we are all in this together. Together we are stronger!</li> <li>• Ask what are others' favorite icebreakers</li> </ul>	To help participants see how interconnected our work is and to have a fun way to start the day	Facilitator #2
10:05–10:15	Break			
10:15–11:35	Peer Consultation	<p>Introduce Peer Consultation (learner mode)</p> <p>Activity (participant mode)</p> <ul style="list-style-type: none"> <li>• Silent reflection on project you want advice on</li> <li>• Break into groups of 4</li> <li>• Each person gets 15 minutes to share about their project, what they want help with, and the three others offer consultation. (Emphasize leaving as much time as possible for the consultation piece)</li> </ul>	To help participants get advice on their projects and learn how to work on projects in collaborative/group oriented way	Facilitator #3
11:35– 12:00	Peer Consultation Debrief	<p>Brief reminder of Peer Consultation basics (back to learner mode)</p> <p>Debrief Conversation (popcorn):</p> <ul style="list-style-type: none"> <li>• What questions do you have about the method?</li> <li>• What did you think of this method?</li> </ul> <p>Silent Reflection in Journal on Method</p>	To help participants understand how to apply the method to their work	Facilitator #3

*Day 2 continues*

**Day 2, continued**

Time	Activity/ Method	Description	Purpose	Lead
12:00–12:45	Lunch			
12:45–1:55	Open Space Technology	<p>Introduce Activity (learner mode)</p> <p>Activity (participant mode)</p> <ul style="list-style-type: none"> <li>• Our Question: What do we need to dig deeper on? Pressing food justice issues? Teaching methods? Questions about facilitation?</li> <li>• You place a topic you want to discuss based on this topic. When you place your topic, you announce it to the group and take a notes sheet. You will be the lead of that topic in the Round chosen during the Market Place</li> <li>• Market Place &gt; Round 1 &gt; Round 2 &gt; 1 chime for 2 minutes left &gt; 2 chimes for time to change to round 2 if you want</li> </ul>	Offering a space to go deeper into food justice in a way that is self-organized and self-directed. If they feel like this training is lacking anything, now is there chance to get the most out of it.	Facilitators #1 & #2
1:55–2:10	Open Space Technology Debrief	<p>Brief reminder of Peer Consultation basics (back to learner mode)</p> <p>Debrief Conversation (popcorn):</p> <ul style="list-style-type: none"> <li>• What questions do you have about the method?</li> <li>• What did you think of this method?</li> </ul> <p>Silent Reflection in Journal on Method</p>	To help participants understand how to apply the method to their work	Facilitators #1 & #2
2:10–2:25	Break			
2:25–3:45	Teach Back	<p>Overview of Teach Back (learner mode)</p> <p>Activity (participant mode)</p> <p>Get in Groups of 4 &gt; Review a Method from Binder Silently &gt; Come up with Application for Your Work, including questions and instructions &gt; Teach the method back your group members (each member teaching a different method to each other)</p>	To help participants learn practice facilitation and think about how to apply to their work.	Facilitator #3
3:45–4:00	Closing Circle	<p>Introduce activity, thank participants, express gratitude for the experience.</p> <p>Activity:</p> <ul style="list-style-type: none"> <li>• Get participants into a circle</li> <li>• Have participants share one word or a story that was most valuable to them about this experience</li> </ul>	To have people dig deeper into what they got out of today's session using a facilitation method.	Facilitator #1

## Appendix B: Evaluation Questions

### Cultivating Powerful Participation

#### Facilitation Cohort Debrief Discussion Questions

1. What are you most proud of from the Food Justice Facilitation Workshop experience?
2. What stands out the most to you from the evaluation results of the workshops? [Evaluation results were shared with participants through Google documents before this discussion.]
3. What helped you kick butt in facilitating the workshop? ["Kicking butt" refers to a part of a step-by-step guide they all used to plan their workshops]
4. What changes have you noticed within yourself since our time together?
5. Have you noticed any changes or ripple effects within the community or organization since the workshop?
6. What are the next steps that should be pursued in this work?
  - o How are you planning on using these skills moving forward?
  - o Would you be interested in facilitating another workshop in the future?

### Cultivating Powerful Participation

#### Post-Workshop Evaluation Questions

##### Page 1:

Thank you for attending a Cultivating Powerful Participation: Food Justice Facilitation Workshop! We are excited to hear what you thought of your event. All information you share will be anonymous and confidential.

1. Which workshop did you attend? (multiple choice with options for each location)
2. How much did your confidence in facilitating conversations about food justice work change by attending this workshop? (multiple choice: Not at all, Somewhat, Very much so)
3. How did the facilitators of this workshop do . . . (Likert scale: Needs Improvement, OK, Great!)
  - o . . . In creating a welcoming environment for learning?
  - o . . . In conveying methods, practices, and concepts in meaningful ways?
  - o . . . In allowing all voices to be heard?
4. Based on your answers to the previous question, is there any advice you'd like to give the facilitators? (open-ended)

##### Page 2:

1. How was your learning experience? What went well? (open-ended)
2. How do you plan to use the methods, practices, and concepts you learned? (open-ended)
3. What, specifically, could have been improved about your learning experience? (open-ended)
4. What else should we know about your experience? (open-ended)

Click here to enter your name [HERE] for a chance to win your choice of the following books. (*Emergent Strategy*; *Farming While Black*; *The Sioux Chef's Indigenous Kitchen*)

## **Appendix C: Questions from Nine-Month Follow-Up Evaluation**

### **Cultivating Powerful Participation**

#### **Nine-Month Follow-Up Evaluation Questions**

##### **Page 1:**

Thank you for attending an in-person Cultivating Powerful Participation: Food Justice Facilitation Workshop in late 2019 or early 2020! Now that you've had time to sit with the information you learned, we'd love to hear how you've used what you learned in your life and work. All information you share will be anonymous. If you have any questions about the survey you can email Jamie Bain ([jbain@umn.edu](mailto:jbain@umn.edu)).

1. Which workshop did you attend? (multiple choice with options for each location)

##### **Subtitle: Demographics**

2. What area of the state best represents the place where you work? (multiple choice with options for different regions of the state, statewide, and other)
3. How do you identify racially? (open-ended)

##### **Page 2:**

##### **Subtitle: Connections**

4. Rate your level of agreement or disagreement for the following statements related to the CONNECTIONS you built as a result of your participation in the Cultivating Powerful Participation: Food Justice Facilitation workshop. (Likert scale: Strongly agree, Agree, Somewhat agree, Neither agree or disagree, Somewhat disagree, Disagree, Strongly disagree)
  - The relationships I built at the workshop were important to my learning experience
  - I feel more connected to others working on food justice in my area
  - I have new relationships I otherwise wouldn't have built
  - The relationships I built at the workshop have helped me improve my work
5. If applicable, tell us about any meaningful connections you've had with people you met at the Cultivating Powerful Participation: Food Justice Facilitation Workshop. We are specifically interested if these connections were across boundaries (e.g., sector, geography, race). (open-ended)

##### **Page 3:**

##### **Subtitle: Knowledge & Skills**

6. Rate your level of agreement or disagreement for the following statements related to the the KNOWLEDGE & SKILLS you gained as a result of your participation in the Cultivating Powerful Participation: Food Justice Facilitation workshop. (Likert scale: Strongly agree, Agree, Somewhat agree, Neither agree or disagree, Somewhat disagree, Disagree, Strongly disagree)
  - I have a greater understanding of the concept of food justice
  - I feel more equipped to engage in food justice work
  - I have a greater understanding of the different tools available to engage audiences in effective meetings
  - I feel more equipped to lead effective meetings

7. If applicable, how have you shared your knowledge and skills you learned from the Cultivating Powerful Participation: Food Justice Facilitation Workshop with others? (open-ended)

**Page 4:**

**Subtitle: Actions**

8. Rate your level of agreement or disagreement to the following statements regarding the ACTIONS you've taken as a result of your participation in the Cultivating Powerful Participation: Food Justice Facilitation Workshop. (Likert scale: Strongly agree, Agree, Somewhat agree, Neither agree or disagree, Somewhat disagree, Disagree, Strongly disagree)
- The meetings or events I've led since the workshop are more engaging (i.e., participants look forward to attending and feel like their voices have been heard)
  - I have supported others in planning and implementing more engaging meetings or events
  - I bring a stronger lens of justice to my work (e.g., anti-racism, disrupting systems, focusing on diversity, etc.)
  - I engage a more diverse audience in my work
9. Please share any stories that help to illustrate how you have shifted or not shifted the way you work based on your participation in the Cultivating Powerful Participation: Food Justice Facilitation Workshop. (open-ended)

**Page 5:**

**Subtitle: Next Steps**

10. How much did COVID impact your ability to use your connections, skill & knowledge gain, and/or actions you planned to take following your attendance of the Cultivating Powerful Participation: Food Justice Facilitation Workshop? (multiple choice: Very Much, Somewhat, A little, Not at all, Other, with open-ended box)
11. Please share anything else you'd like us to know about your experience with the Cultivating Powerful Participation: Food Justice Facilitation Workshop. (open-ended)

Click here to enter your name [HERE] for a chance to win your choice of the following books. (*Emergent Strategy*; *Farming While Black*; *In the Shadow of Green Man*; *Braiding Sweetgrass*)



## Advancing food democracy: The potential and limits of food policy positions in local government

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### Abstract

For several decades, food policy councils (FPCs) have led the effort to place food on local government policy agendas. While FPCs are making progress in supporting local food systems, they also

face institutional and organizational challenges. In recent years, a handful of cities and counties have endeavored to further food system reform with the establishment of full-time government staff positions focused on food policy. As of spring 2020, there were 19 confirmed food policy positions housed in local governments across the United States. While there is considerable literature on FPCs, little research has been published regarding food policy staffing in local governments.

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### Author Note

The original research for this article was conducted as part of the first author's graduate student professional paper.

Accordingly, this study uses original in-depth interviews with 11 individuals in municipal or county food policy positions to understand the purpose and function of governmental food policy staff positions and their impact on local food systems. Our findings suggest that these positions help to coordinate and nurture local food programs and policies and have the potential to facilitate meaningful participation of individuals and groups in the community in food system reform. We discuss the potential benefits and challenges for governmental food policy positions to support food democracy, and provide the following recommendations for communities interested in establishing or strengthening similar positions: (1) identify and coordinate existing opportunities and assets, (2) foster and maintain leadership support, (3) root the work in community, (4) connect with other food policy professionals, and (5) develop a food system vision.

### **Keywords**

Food Policy, Food Democracy, Coordination, Local Government, Food System, Food Policy Council

### **Introduction**

Over the last several decades, numerous scholars, community development practitioners, and activists have critiqued the dominant, industrial food system, in part because of the extraordinary levels of economic and political power held by transnational agri-food firms. In particular, the concentration of economic power among agri-food firms means that a small number of firms have gained extensive control over the shape and development of the agri-food system at nearly every level, from seeds and inputs, to processing, to retail (Hendrickson et al., 2017; Lang et al., 2009). This oligopolistic power structure has produced a globalized food system that exacts an extraordinary toll on the living and working conditions of farmers and farm laborers, the biodiversity and health of ecosystems, the rights and well-being of marginalized communities, and the health of consumers. In response, calls for more democratic food systems have amplified concerns about the need for sustainability and equity in the dominant food system.

Food democracy envisions individuals and communities as vital, active participants in shaping more just, equitable, and community-based food systems (Hassanein, 2003; Sieveking, 2019). One manifestation of the potential for food democracy is the ever-expanding network of food policy councils (FPCs), which have been established in localities throughout the United States and the world (Johns Hopkins University Center for a Livable Future, n.d.). For several decades, FPCs have emerged as desired forums for civic participation in the food system, and laid substantial groundwork in placing food on local government policy agendas where it once was notably absent (Feenstra, 1997; Muller et al., 2009; Pothukuchi & Kaufman, 1999). In 2018, 283 FPCs in the U.S. were verified as either active, in development, or in transition (Santo et al., 2021). Many FPCs serve as vital institutions for fostering food democracy and advising local governments in their efforts to create vibrant, resilient, and equitable local food systems (Bassarab et al., 2019; Hassanein, 2003; Sieveking, 2019). FPCs also have the potential to promote many of the basic tenets of community development, including encouraging local self-reliance, building resiliency, supporting equity and justice, and enhancing social capital, to name but a few (Christensen & Phillips, 2017; Lamie & Deller, 2017). Yet, despite their fundamental role in food system reform and food democracy, FPCs face limitations in their capacity and resources. For example, the majority of FPCs primarily rely on volunteer membership, and only 36% ( $n=198$ ) of those who responded to the 2020 Food Policy Networks survey report having paid staff, which may limit the depth and breadth of their work (Santo et al., 2021).

In many cases, a lack of financial and personnel resources causes FPCS to focus more heavily on programs, rather than policy (Gupta et al., 2018; Scherb et al., 2012; Schiff, 2008). According to interviews conducted by Schiff (2008), some FPCs expressed that having a programmatic focus allows them to engage in the hands-on implementation of food policy rather than getting bogged down in the bureaucracy and political messiness of researching, developing, and recommending policy. While FPCs may be more experienced and efficient in develop-

ing and supporting food-related programs, this lack of focus on policy suggests that there remains a gap in the development stage of food policy for many communities. This gap points to earlier scholarship on community food policy and planning by Pothukuchi and Kaufman (1999), which identified FPCs as one of multiple approaches to pursuing local food policy initiatives. Communities, they argued, may also find opportunities to create comprehensive food system plans and policies through municipal departments of food or by integrating food policy into existing planning agencies. Rather than relying on one policy model, communities may find food systems work can be amplified and strengthened through an integrated and multifaceted approach.

Few studies of the role of government actors or civil servants in facilitating food democracy exist in the literature (van de Griend et al., 2019). Yet, some local governments have recently established staff positions centered on local food policy or food systems (Hatfield, 2012; Santo et al., 2014). The number of city and county food policy staff positions in the U.S. has fluctuated, in part because food policy and food systems planning are novel additions to local government agendas. Therefore, there is little precedent for longitudinal studies or determining best practices (Hatfield, 2012). The overall trend, however, is one of growth in numbers, having reached 19 confirmed positions in the U.S. by 2020. Nearly all of these positions were established in the previous five years (as detailed in our findings below).

While local governments continue to establish these positions, there is little scholarship regarding their genesis, development, and impacts on food democracy. In an important recent addition to the literature, however, van de Griend et al. (2019) conducted an ethnographic study in the Dutch municipality of Ede that specifically explored how government actors working on an urban food policy shaped the conditions for different types of participation among non-governmental organizations. Evaluating civic participation as a key dimension of food democracy and a core strategy for citizens to shape their community's food system, they found that food democracy can be enhanced and made more inclusive when a municipality commits

to achieving a holistic food policy and creates spaces for civic participation. Moreover, van de Griend et al. (2019) argue for balancing a strong leadership role in local government with a more open and responsive approach toward non-governmental organizations. Such a balance, they contend, will not only facilitate movement toward achieving food policy objectives, but also enhance food democracy through meaningful civic participation and collaborative action.

In order to add to the emerging literature on the role of government actors in food democracy, this article presents the results of research on these relatively new food policy positions in local governments in the U.S., as well as the benefits, challenges, and outcomes of their work. Our specific research questions are: (1) Based on the experiences of communities with food policy staff positions, what opportunities do food policy staff positions provide local governments in terms of advancing the creation of a more healthy, sustainable, and equitable food system? (2) What limitations or challenges do these staff encounter as they try to achieve specific outcomes? (3) How might these positions be helping to advance food democracy? Similar to Sieveking's (2019) evaluation of FPCs in Germany, we operationalize the concept of food democracy using Hassanein's (2008) framework as a means for analyzing governmental food policy positions as tools for food democracy. In particular, we consider the following key dimensions of food democracy:

- (1) Collaborating toward food system sustainability;
- (2) Becoming knowledgeable about food and the food system;
- (3) Sharing ideas about the food system with others;
- (4) Developing efficacy concerning food and the food system; and
- (5) Acquiring an orientation toward the community good.

To address our research questions, we carried out and thematically analyzed original, in-depth interviews with 11 individuals in municipal or county food policy staff positions. Based on this

thematic analysis, we describe the relevance of governmental food policy staff positions to U.S. communities and reflect upon the potential for such positions to support the principles of food democracy in community food systems. We then provide recommendations for communities interested in establishing food policy positions in local government. Finally, we discuss opportunities for future research of governmental food policy positions as emergent models of food democracy.

## Methods

In order to generate the sample for this study, we endeavored to identify and verify all active food policy staff positions in city or county governments throughout the U.S. This process began with referencing Hatfield's (2012) study, and cross-referencing that information with resources such as the Food Policy Networks directory (Johns Hopkins Center for a Livable Future, n.d.), local government online resources, and the U.S. Conference of Mayors Food Policy Task Force (United States Conference of Mayors, n.d.). The preliminary list of food policy staff positions was then reviewed and updated by the senior program officer at the Johns Hopkins University Center for a Livable Future (K. Bassarab, personal communication, January 28, 2020).

The verified list includes 19 municipal or county governmental food policy staff positions as of 2020. From this list, 11 individuals were interviewed using a semistructured format in spring 2020. While individuals in all 19 positions were invited to participate, several did not respond and a handful were unable to participate within the time constraints of the project. Thus, our sample represents 58% of all known positions at the time. Table 1 shows a list of interview participants. Participant identity was not made confidential because participants work in local government and their information is publicly available; furthermore, the authors felt that their identity and location would provide a valuable resource for collaboration and networking opportunities.

In general, interview questions addressed the participants' professional background, the history and responsibilities of their position, and their experiences working at the job. The interview

guide is in the Appendix. Audio from each interview was recorded, transcribed verbatim, and analyzed using thematic content analysis (Hesse-Biber, 2017). A comprehensive description of the methods used is detailed in Berglund (2020).

## Descriptive Findings

The findings presented in this section describe the themes and topics most frequently discussed among the 11 interview participants. The central themes that emerged include organizational structure, benefits of the position, challenges of the position, lessons learned, and recommendations for establishing a food policy position. Based on these findings, we then analyzed the potential and limitations of food policy positions to support food democracy using the key dimensions of food democracy introduced above and described by Hassanein (2008).

### *Organizational Structure*

Governmental food policy staff are positioned in local government in a myriad of ways. For example, we note that positions are often housed in a variety of departments, including sustainability, economic development, public health, the mayor's office, and county extension. Among the 11 individuals interviewed, each position has a different title, but all have a food systems or food policy focus and serve in a leadership or advisory capacity. As of April 2020, all these positions are one full-time equivalent (1 FTE). Seven serve as the sole staff person working on food systems in their government. At the same time, all but one of the communities represented in this research have an active food policy council or board, which the respective food policy staff is tasked with supporting (Lexington, Kentucky, does not have a council). Two positions, the Columbus local food systems strategies coordinator and Franklin County food systems planner, support the same food board and local food council, because the city of Columbus is located within Franklin County.

In general, these 11 positions were established as the result of collaborative action and advocacy by community leaders and elected officials, such as mayors, local FPCs, and/or leadership in governmental departments. The motivations behind

**Table 1. Description of Eleven Positions and the Respective Food Policy Council as of May 2020**

City or County	Name of Position	Year Established	Position Location	Position Funding	Individual in Position	Years in Position	Additional Staff	Food Policy Council	Year FPC Established	Structure	Members
Austin, TX	Food Policy Manager	2014	Office of Sustainability	City general fund	Edwin Marty	6 years	1.5	Austin-Travis County Food Board	2008	Governmental	13
Columbus, OH	Local Food Systems Strategies Coordinator	2015	Public Health Department	Originally funded through temporary funds (i.e. grants, foundations, innovation fund); now city general fund	Cheryl L. Graffagnino	5 years	1	Columbus-Franklin County Local Food Board; Franklin County Local Food Council	2016; 2013	Governmental; nonprofit	12; 10
Denver, CO	Food Systems Administrator	2015	Department of Public Health and Environment	Originally funded through temporary funds (i.e. grants, foundations, innovation fund); now city general fund	Laine Cidlowski	3 years	5	Denver Sustainable Food Policy Council	2010	Governmental	Varies
Indianapolis, IN	Food Policy and Program Coordinator	2016	Office of Public Health and Safety	City-county council budget	Milele Kennedy	1 year or less	None	Indy Food Council	2014	Governmental	Varies
Lexington, KY	Director of Local Food and Agricultural Development	2014	Mayor's Office of Economic Development	Originally funded through temporary funds (i.e. grants, foundations, innovation fund); now city general fund	Ashton Potter-Wright	6 years	None	None	N/A	N/A	N/A
Madison, WI	Food Policy Director	2016 (2012–16 was Food and Alcohol Policy Coordinator)	Mayor's Office	City general fund	George Reistad	4 years	None	Madison Food Policy Council	2012	Governmental	23
Minneapolis, MN	Local Food Policy Coordinator	2014	City Coordinator's Office, Sustainability Division	City general fund	Tamara Downs Schwei	6 years	2	Homegrown Minneapolis Food Council	2011	Governmental	21

City or County	Name of Position	Year Established	Position Location	Position Funding	Individual in Position	Years in Position	Additional Staff	Food Policy Council	Year FPC Established	Structure	Members
Salt Lake City, UT	Food and Equity Program Manager	2019	Sustainability Department	Originally funded through temporary funds (i.e. grants, foundations, innovation fund); now city general fund	Supreet Gill	1 year or less	None	Salt Lake City Food Policy Council	2008	Governmental	Up to 16
Dane County, WI	Community Food Systems Coordinator	2019	Dane County Extension	County and state extension funds	Jess Guffey Calkins	1 year or less	None	Dane County Food Council	2006	Governmental	12
Douglas County, KS	Sustainability and Food Systems Analyst	2014	Sustainability Department	Originally funded through temporary funds (i.e. grants, foundations, innovation fund); now county general fund	Kim Criner Ritchie	1 year or less	None	Douglas County Food Policy Council	2010	Governmental	16
Franklin County, OH	Food Systems Planner	2016	Economic Development and Planning Department	County general fund	Brian Estabrook	3 years	None	Columbus-Franklin County Local Food Board; Franklin County Local Food Council	2016; 2013	Governmental; nonprofit	12; 10

creating these positions centered around (1) elevating the food system, (2) developing a holistic and coordinated approach to food system governance, and (3) addressing the community's persistent food-related issues.

The role played by these food policy staff is often complex and dynamic, as a result of the structure of the food system and of shifting community needs, priorities, and resources. The responsibilities and duties assigned to these positions are distinct in some instances, but generally fall into the following categories:

- Communication, coordination, and public relations,
- Policy development and implementation,
- Project development, support, and management, and/or
- Food systems analysis.

When asked about which areas of food policy they prioritize in their position, the majority of study participants identified (a) economic development, (b) healthy food access, (c) food waste reduction and recovery, and (d) food procurement. Several participants also mentioned food production, land use planning, and transportation. These priority areas were most frequently determined by existing plans and policy activity in local government. However, several participants also pointed to community input and FPC recommendations as influential determinants of priority areas. In many instances, participants described working on policies and programs that address multiple priorities at once, such as the city of Madison's Healthy Food Retail Access Program, which provides funding support to small, food retail businesses in areas lacking in healthy food access.

Several positions described their job and its priorities as constantly evolving over time. Although their job priorities can be categorized into tidy boxes, in reality, the complex work requires a "systems-thinking" approach that includes understanding various food system elements and their interconnections, scales, and feedback loops (Bassarab et al., 2019; Clancy, 2012; Palmer & Santo, 2020). For example, the city of Austin faces

urgent issues around affordable housing, healthy food access, and farmland preservation, and addressing one issue in isolation may undermine progress on another. As Austin's food policy manager, E. Marty, explained: "We really spent the last five years trying to unwind that very complex equation ... what I call a triangulation of quality of life, where we need to have dense, affordable housing located near good food retail in combination with access to multi-mobility transportation options." Similarly, Indianapolis's food policy and program coordinator strives to identify and address the root causes of poverty to more meaningfully address food insecurity at the city scale.

### *Benefits of the Position*

In considering the value of their particular position and the role it plays for their community, participants mentioned a number of benefits, broadly grouped into four thematic categories: (1) coordination and collaboration, (2) food system leadership, (3) capacity building, and (4) systems thinking. The majority of participants spoke to benefits in all four categories, with coordination and collaboration benefits mentioned most frequently.

**Coordination and collaboration.** Seven participants described being a kind of point-person for food systems in government and the larger community—someone who fills a communication and coordination gap. B. Estabrook, food systems planner for Franklin County, OH, explained:

The primary benefit is that there is someone within the county who is aware of all of this work happening across multiple different, siloed efforts and can understand and communicate across all those silos and coordinate work and make connections. A big, big, big, big part of our role with the local food team is coordination, collaboration, connection. And so, that can only be done if someone knows everything that's going on. So, a lot of the benefit is just having one sort of centralized hub where those things are known.

**Leadership.** Rather than addressing the food system in a patchwork fashion or with part-time

staff, which is frequent in local government (Harper et al., 2009), these full-time policy staff are uniquely focused on the food system, affording them the opportunity to foster a leadership role. Along with coordination and expertise, interviewees described how they practice leadership, especially through outreach. Five participants expressed that they are able to facilitate and lead conversations around food in their community and beyond. In some places, the food policy positions now involve a greater supervisory role. In Denver, for example, the food systems administrator, L. Cidlowski, has been able to grow the city's local food team to include five full-time staffers, now one of the largest municipal food systems teams in the country.

**Capacity Development.** Perhaps one of the more obvious benefits of these positions is that they build capacity for food systems work through the dedication of time, resources, and personnel, which in turn expands local government's ability to engage in and support food-related policy and programs. As government staff, they have access to key stakeholders and information, and are often able to leverage resources for food policy initiatives. Several participants mentioned that working in a municipality or county allows them to explore opportunities and incubate new programs through funding opportunities and the development of strategic relationships between government and non-government actors. Furthermore, five participants described their work as an effort to elevate and sustain existing programs, and not to undermine or co-opt grassroots initiatives by connecting them with resources and expertise to which they otherwise may not have access.

Providing staffing for food policy councils has tradeoffs when it comes to organizational capacity building. Five of the ten participants who staff their council specifically mentioned positive outcomes in building the capacity of the group by providing a more direct connection to local government and dedicated staff time. For instance, the sustainability and food systems analyst for Douglas County has been able to build the FPC's capacity by applying for grants and recruiting new members. Two participants, however, expressed concerns that their role in the FPC could lead to a

sense of complacency or disempowerment among the members. Similarly, Schiff (2008) and Bassarab et al. (2019) found that a strong tie to government can strengthen a FPC's credibility and access to resources, but can also undermine its autonomy.

**Systems Thinking.** An advantage of working in local government is the freedom to apply complex systems thinking. For example, the city of Austin's food policy manager explained:

One of the great things about working for municipal government ... we have a lot of leeway to say, hey, this is a really complicated issue and we're not seeing any good way to describe this. And we're going to keep working on this and we're going to keep talking about it and keep putting this all on the table.

Several participants reported that their position in government allows them to be both nimble and thoughtful—that is, able to dedicate time to understanding complex issues in order to build the best possible outcomes. Even in government, G. Reistad thinks that his position is among only a few in the city of Madison with the opportunity to look and work across departments, organizations, and the community to develop and implement more integrated solutions. Given both the holistic nature of their work and the relative novelty of their positions, the majority of participants have found it difficult to develop meaningful benchmarks for measuring the success of their work: for example, in terms of increasing healthy food access or decreasing food insecurity. Despite these challenges, however, some participants continue to seek useful metrics and ways to evaluate their work.

### *Challenges of the Position*

While participants described many benefits provided by their position, their work has its challenges, which are often unique to a particular community and staff position. Nevertheless, three general categories emerged in the analysis: (1) limited resources, (2) the scope of systemic problems, and (3) political dynamics.

**Limited Resources.** The most common challenges faced by participants were related to



lack of adequate personnel and financial resources. Ironically, in their efforts to build capacity for food systems work in their communities, about half of the participants mentioned their own needs for more resources and their struggles with being the sole person working on food systems in their government. Also, three participants expressed frustration with not having a permanent or adequate budget to actually support the programs that they manage. At the time that interviews were conducted, only five of the positions represented in this study had an operational budget. Similarly, some have found it difficult to sustain programs over time due to limited resources. C. L. Graffagnino expressed a related concern: “We still have a funding system that is competitive. So, it does not encourage collaboration and people working together.” Several participants noted, however, that collaboration with other departments and community organizations is crucial to making progress in their work despite resource limitations.

**Scope of Systemic Problems.** Several individuals described challenges related to the scale of the issues that they are tasked with addressing. For instance, reflecting upon Indianapolis’s high rate of food insecurity and substantial struggle with food access, M. Kennedy explained, “when you look at the numbers ... you’re constantly thinking about the kind of impact that you can make, and so, that can be a really daunting task.” A couple of participants also noted the challenge of navigating the tension between short-term emergency food provisioning and longer-term, systemic food policy changes. The complex structure of food systems can also make it difficult to determine next steps or prioritize projects. When faced with the need to prioritize, the majority of participants said that their priorities are largely driven by the momentum of other projects and policies in local government as well as by salient community needs and interests.

**Political Dynamics.** Other challenges mentioned by interviewees centered on social and political aspects, the circumstances of which were fairly unique to their community and individual experiences. Two participants, including L. Cidowski, food systems analyst for the city of Denver,

described the inherent political frustrations that come with working in local government:

It’s very political. And getting over, passed around, politics is an art, not a science... adapting to whatever the existing conditions are and understanding what will help people to change the way they’ve been doing things or why they should care about these food access needs. It’s definitely a trickier part of it.

Similarly, Austin’s food policy manager faces obstacles working in the context of a state government that has different and often opposing priorities and perspectives than the city has about governmental food systems work.

Other challenges mentioned less frequently by participants included bridging the rural-urban divide, building demand for locally produced products, and finding a balance between diving deep into specific programs and looking broadly across the whole food system. Learning to navigate politics and the many mechanics of local bureaucracy is, of course, a necessity of the job. Several participants spoke to the value in practicing patience while also being flexible enough to seize opportunities when they present themselves.

In general, food policy staff suggested that these challenges are not insurmountable and that they continue to find strategies to minimize or overcome them. Over time, individuals in these positions have been able to leverage their relationships and establish credibility, which has translated to availability of more resources and a stronger commitment by the local government to food systems work.

### ***Lessons Learned***

In addition to the perceived benefits and challenges of their position, participants were asked to share the major lessons they have learned during their tenure. Lessons were not easily generalized, particularly because some participants have been in the position for several years, while four participants had less than a year of experience in the position. Nevertheless, several common takeaways provide valuable insight for other communities.

**Time and Patience.** One of the most com-

mon and, perhaps, obvious lessons participants shared was that their work takes time, and therefore requires patience. This temporal constraint is both a function of the bureaucracy and of the complex dynamics associated with food system change. For example, when new projects or policies are proposed by working groups within the 23-member Madison Food Policy Council, they must be approved by the council as a whole prior to moving up the chain of command in the city. G. Reistad explained that the process is time-consuming, but “more often than not, the criticisms or the feedback that come through that vetting process of the food policy council has actually helped improve the idea.” Ultimately, the time and dedication required suggest that it can be “its own full-time job ... something that needs undivided attention” (M. Kennedy). In learning to accept the slow pace of their work, participants have also developed strategies to maximize progress.

**Adaptation to Specific Circumstances.** Several participants have learned that while models from elsewhere provide valuable insights and ideas, they usually need to be adapted to the specific circumstances of their community. Three participants practice a “why not both” or “*por que no los dos*” philosophy: pursuing multiple strategies simultaneously in an effort to keep their options open and take advantage of opportunities when they arise. As L. Cidowski explains:

It's good to attempt to do more than you actually can do because there may be a lot of irons you have on the back fire and you think, oh, that's not ready right now or I don't have the support for that at the current time, but something could change really quickly. A city council member could get appointed who really cares about food or a community-based coalition can get a big grant to work on community engagement.

This, again, demonstrates the significance of these individuals having an intimate knowledge of the community's food system and the various food-related activities that government departments, organizations, and community members are engaged in.

### **Flexibility and Continual Adjustments.**

Several individuals have realized that, due to the complexity of food systems and policymaking, their work does not follow a linear trajectory; rather, “it's always a squiggly line kind of path. There's never really like, ‘OK, this is what we're going to do and this is how we're going to do it’” (S. Gill). In general, participants emphasized the importance of maintaining flexibility, openness, and a collaborative spirit.

**Coalition Building.** All participants discussed the realization that they cannot achieve anything alone and that building a network of partnerships is central to their effectiveness. A. Potter Wright explained, “relationships are paramount in this work, and I couldn't do anything without the partnerships that I've developed.” Relationships are what allow food policy staff to leverage resources, make in-roads, develop lasting strategies, and achieve both leadership and community buy-ins. As a result, individuals in these positions are constantly seeking ways to network, develop champions for their work, and engage the community. Food policy staff also prioritize “engaging community members on the solutions” (J. Guffey Calkins). Similarly, four participants highlighted the significance of fostering inclusivity and making sure that all voices in the community are represented in their work, especially those most disadvantaged. For M. Kennedy, this often entails finding “not just one approach to reaching the community, but ensuring that there are a number of ways for the community to be involved, whether it's at a personal level from their smartphone or online, or in a community level by coming out and being engaged in community groups and community meetings.”

**Actionable Strategic Planning.** An important lesson that a few participants discussed is the value of having a plan that outlines food systems goals for the community and developing strategies for implementation of the plan. For example, B. Estabrook described the local food action plan process in Franklin County and Columbus, OH:

A lot of times, local government creates a plan, and it sits on a shelf and no one looks at it. And everybody says, ‘hey, we created this cool plan,’ but there's no plan to do something with

the plan. So, we really gave a lot of thought to: what does it look like to actually make this actionable?

Both in communities where a strategic food system plan or local food action plan exists and where it does not, food policy staff stressed the value of developing a roadmap to guide their work and help align the goals of the community with those of the local government.

### ***Recommendations for Establishing a Food Policy Position***

When asked if they would recommend that other communities develop a staff position such as theirs, seven participants affirmed that it was a valuable means of advancing a community food system. For example, K. Criner Ritchie stated, “I would say any opportunity to have a staff person that can focus on food systems work can only be a good thing,” and A. Potter Wright said, “I think lots of places could benefit from a position like this.” The other four participants were more reserved with their endorsement, saying that the value of these positions depends on the specific community and its available resources. From this perspective, not every city or county needs a person working in government on food systems; however, they did think that each community needs people and groups to address food systems specifically, broadly, and intentionally.

Prior to establishing such a position, several individuals strongly recommended that the city or county perform a community food assessment (CFA), such as those described by Pothukuchi (2004), to identify food systems gaps. Additionally, G. Reistad suggested doing an “asset assessment” to better understand what the community is doing well and what assets can be leveraged by a staff person to address the gaps. Three participants also suggested that the community should develop a food action plan or long-term food vision. In highlighting the value of a food action plan, two participants stressed the significance of having a full-time food policy staff position to lead the implementation of the plan.

Once a clear purpose and directives are established, four participants recommended that the

community spend time carefully considering where the position should most effectively be housed in its local government, as this influences what type of work can be done. One participant, however, stressed that the specific department where the position is housed was not nearly as important as having the support of government leadership. Seven participants also identified leadership support as an essential component of successfully establishing and maintaining a position. Additionally, four participants expressed the need for financial support and, ideally, at least a small operational budget.

Overall, the 11 participants felt that having a local food policy position in government plays a valuable role for their community’s food system. In general, the individuals in these staff positions expressed pride in their role in local government, citing numerous food-related achievements, and felt that their work helps to move the needle on food system reform for their communities.

### **Discussion: Key Dimensions of Food Democracy**

The above findings provide insight into the nature of the recently established food policy positions in local government and initial evidence for understanding these positions as an approach to advancing food democracy. Accordingly, the following section analyzes these findings in light of five key dimensions of food democracy identified by Hassanein (2008), Sieveking (2019), and van de Griend et al. (2019).

#### ***Collaborating Toward Food System Sustainability***

Food democracy requires effective coalitions that expand the number of people involved, include differing perspectives, and enable groups to collaboratively affect change in ways that they could not do on their own (Hassanein, 2008). Such collaborative action was clearly shown in this study in several ways. First, the genesis of these positions in local governments emerged from collaborative action among stakeholders from both in and outside government. Second, every participant in this study said that they could not achieve anything alone and/or that building collaborative networks is

essential to their work. Third, all 11 interviewees were fundamentally concerned with developing sustainable outcomes for their community with regard to “ecological soundness, economic viability, and social justice and welfare” (Hassanein, 2008, p. 290). For example, among food policy priorities, economic development and healthy food access were the most frequently mentioned, by ten and nine participants respectively. Because collaboration is fundamental to food system sustainability and food democracy, our findings suggest that these government actors are providing leadership that facilitates such collaboration across public and private sectors in ways that are similar to findings by van de Griend et al. (2019).

### ***Becoming Knowledgeable About Food and the Food System***

Food democracy recognizes the importance of individuals having the knowledge necessary to participate effectively in the food system. We found that food policy staff often serve as a food systems expert, point-person, and educator for both the government and the community generally. Typically, as with ten of the 11 positions in this study, their responsibilities include staffing the local FPC and providing administrative support as well as expertise. FPCs likely benefit from the increased resources and expertise that food policy staff can provide while still maintaining their focus on the community’s interests. Previous studies have shown, however, that an FPC’s relationship with government yields complicated results. A close relationship with government can lend legitimacy and credibility to an FPC, but that relationship can also limit or undermine its efficacy by coercing it to align its work with the local administration’s agenda and adhere to bureaucratic processes and timelines (Bassarab et al., 2019; Schiff, 2008). This may be true of other grassroots organizations involved with food systems work. Communities and individuals in food policy positions should take care to recognize this possibility and build strategies to elevate, not hinder, grassroots and community efforts through helping others become more knowledgeable about the food system and its elements (van de Griend et al., 2019).

### ***Sharing Ideas About the Food System with Others***

Food democracy depends on discussion and deliberation that enable community members to share their viewpoints and clarify values. Study participants indicated clearly that coordinating and facilitating such discussions across a wide variety of food initiatives in a community and across local government are central tasks in their work. While these positions are necessarily housed in a particular government department, their work encompasses a diverse spectrum of programs and policies that relate to overall community well-being. In the process of coordinating food-related programs and policies, food policy staff act as an effective information pipeline between a community and its government. Most importantly, in staffing the FPCs and bringing together different stakeholders, these positions have the potential to create spaces for collaboration on food system issues in ways that a strictly volunteer council may not have the capacity for.

Individuals in local food policy positions may also work to connect with others elsewhere, regionally and nationally, developing a broader network of idea sharing (Hatfield, 2012). While the U.S. Conference of Mayors Food Policy Task Force includes several people interviewed for this study, the task force is, of course, limited to municipalities. Furthermore, not all municipalities with a food policy position are included in the task force at this time. A broader network that includes both cities and counties, and perhaps national and international participants, could expand collaborative and innovative food policy initiatives.

### ***Developing Efficacy Concerning Food and the Food System***

From the outset, food policy staff positions lend increased visibility to community-driven food systems work in local government and across the community. By deliberately creating a space within government for the community to engage in food policy and programs, these positions provide an effective avenue for public participation in food system reform. Additionally, these positions represent a dedication of resources and staff time to food-related initiatives. Hassanein defines efficacy

as “not only a capacity to act but also includes actually having an effect” (2008, p. 297). With a specific food systems point-person located in local government, individuals and communities have a clear pipeline to not only express their food-related concerns but also pursue solutions. As such, the additional resources, networks, and capacity provided by a food policy staff position may increase the efficacy of actions by citizens and food policy groups. However, it should be noted that individuals in these positions continue to face challenges with securing sufficient resources for their work and, at times, can be limited by bureaucratic processes and timelines. Practicing food democracy and developing efficacious food policy takes time and resources, both fiscal and human (van de Griend et al., 2019), and will require ongoing and collective effort by food policy staff, food-related organizations, and the community.

### ***Acquiring an Orientation Toward the Community Good***

A strong democracy requires that citizens care about the public or common good and are willing to go beyond self-interests to promote the well-being of the entire community. Because food is a basic human need, FPCs generally have been understood to be a space to advance the common good with respect to meeting that need (Bassarab et al., 2019; Hassanein, 2003). The extent to which a food policy staff person engages with the community FPC and seeks out the community’s input varies by context as well as by the individual. While we cannot fully assess these dynamics based on this study design, clearly, in establishing these new positions, local governments are investing resources and public funding in order to promote more meaningful participation in all the dimensions of food democracy discussed above. There not only needs to be public support for creating these opportunities, but also evaluations to ensure the community feels a sense of ownership in the process and is able to participate in meaningful and effective ways (Lachapelle, 2008).

### **Conclusion and Recommendations**

The emergence and continued expansion of FPCs demonstrates movement toward more democratic,

community-based food systems. Local governments have begun to respond to pressure from community food organizations by becoming more actively engaged in food policy and increasingly dedicating staffing resources to these issues (Gupta et al., 2018; Hatfield, 2012). Our study identified ways that some local governments are using food policy staff positions to increase community capacity and move toward food democracy. However, the outcomes of such support in terms of realizing particular community food system visions needs further investigation (Raja et al., 2018; van de Griend et al., 2019).

Our study builds on the work of scholars who, over the last decade, have described the emergence of city and county governmental food policy staff positions and highlighted the potential of such positions to create food system reform (Hatfield, 2012; Raja et al., 2018; Santo et al., 2014; van de Griend et al., 2019). This study contributes to this body of scholarship by describing the purpose, functions, and outcomes of 11 food policy positions housed in city or county governments throughout the U.S. and analyzing the potential and limits of these positions to advance food democracy in their communities. As this area of research remains understudied, this study also contributes additional questions and areas for future research.

Our data show that while there are a variety of challenges for food policy staff operating in local government, many of our interviewees report significant advantages to pursuing food system reform at a governmental level. In particular, participants felt that a food policy position in local government increases the attention, resources, and coordination directed toward their community’s food systems work. Our findings suggest that governmental food policy positions have the potential to support food democracy and food system reform, echoing the findings discussed by van de Griend et al. (2019) in their analysis of government actors participating in urban food policy. Therefore, we offer five recommendations for communities interested in establishing or strengthening food policy positions in local government.

#### **(1) Identify and Coordinate Existing Oppor-**


**tunities and Assets.** Food policy staff can expand and strengthen food-related, sustainability-focused work in their community by assessing existing opportunities, assets, and resources in the food system, which then can be leveraged to identify new prospects to address problems and resource gaps in the community.

- (2) Foster and Maintain Leadership Support.** A primary step in successfully establishing and sustaining a governmental food policy staff position is securing leadership support, both from leaders in government and the greater community, by building strategic relationships, speaking to the fundamental concerns of leaders, and highlighting the key gaps and opportunities present in the food system through data and community voices. Finding champions to support systemic change through policy is critical, particularly because governmental food policy positions are a relatively new concept. Securing the support of leaders in the community can create space and resources for food policy work as well as build collaborative rapport between local government and community organizations.
- (3) Root the Work in Community.** At its core, the concept of food democracy is premised on the idea that all community members in a food system have valuable contributions to make in the process of developing solutions to food-related problems (Hassanein, 2003). Local governments interested in supporting food democracy and citizenship should strive to engage as many constituencies as possible in the decision-making process in order to successfully plan for community food systems (Raja et al., 2018). By ensuring that all community perspectives are a cornerstone of the work of food policy staff, local governments will be better equipped to understand the significant gaps in local food systems and, thus, able to build appropriate and lasting solutions.
- (4) Connect with Other Food Policy Professionals.** Consistent with Hatfield's (2012) recommendation, food policy staff can increase their impact by connecting and sharing resources with others in similar positions.

While a handful of resources do currently exist, food policy professionals stand to benefit from an expanded and active communication network. Rather than starting from scratch, food policy staff can learn from one another, collaborate, and amplify their work, although they may have to adapt it somewhat to their own communities.

- (5) Develop a Food System Vision.** A vision could take several forms, from a single vision statement to a long-term community action plan. A clearly defined food system vision that is constructed with input from the community and a diversity of food system representatives can help to guide the responsibilities and long-term goals of a food policy staff position. It may also help to ensure that the position aligns with the community's interests and values over the long term, a key consideration in advancing food democracy.

As governmental food policy positions continue to emerge, communities across the U.S. can bolster the success of their food policy work by learning from and applying lessons from the experiences of other communities, such as those highlighted in our study. Future scholarship should seek to further describe the array of existing local government staff positions in food policy, similar to the Center for a Livable Future's Food Policy Council directory. This study analyzed 11 food policy positions in an effort to describe the concept of these positions as a whole. Comparative analyses based on specific variables, such as age of the position, size of the city or county, the department in which the position is housed, and if the position supports an FPC may provide valuable insights which our analysis did not yield.

As scholars, practitioners, activists, and communities seek to nurture democratic food systems, recently established food policy positions in city and county governments offer an opportunity to connect policy and government resources with residents, local businesses, and community organizations. Such collaboration and coordination throughout a community food system may facilitate the kind of active citizenship and systemic change that is central to food democracy. 

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## Appendix. Interview Guide for Municipal or County Food Policy Positions

Introduction: Before we get started, I want to thank you for giving your time and agreeing to participate in this interview—I am excited to have the opportunity to connect with you.

I also want to thank you for completing the informed consent form.

### Begin Interview:

Personal background: I'd like to start with a little bit about your background and the basics of your position.

1. How long have you held the food policy (manager/director/coordinator) position for (city or county name)?

Follow-up: are you the first to hold this position?

2. Briefly, what educational and/or experiential background do you bring to the job?  
Probe: what is your experience working on food-related policy?
3. What are some of your main job responsibilities?
4. I understand that your community has a food policy council, what relationship does your position have with the council?  
Probe: How has the council's work changed, if at all, since your position was created?

Structure/organization of position: Great, now I'd like to learn about the genesis of the position itself and the local government's work on food policy.

5. What department of government is the position housed in?  
Follow-up: who is your direct supervisor?
6. How is the position funded?
7. Why did the (city/county) create this position?  
Follow-up (if necessary): when was that?  
Follow-up: what steps were taken to establish the position?  
Probe: are there any other the reasons?
8. The term "food policy" encompasses a wide variety of food-related dimensions, what aspects of food policy does you prioritize in your position?  
Probe: How do you go about setting those priorities?
9. How is progress on food-related goals measured and evaluated?

Lessons learned from position: Now that I understand the context of the position, I'd like to hear more about your personal experiences working as the (food policy manager/coordinator/etc.).

10. What do you see as the primary benefits of this position for the (city/county)?  
Probe: are there any other benefits you'd like to mention?
11. What are some notable accomplishments that you have led in this position?  
Probe: any others?

12. What are some of the major challenges that you face in this position?

Probe: any other challenges?

Probe: how are you meeting those challenges?

13. What major lessons have you learned from this position?

Probe: What changes, if any, would you make to the organization or responsibilities of the position?

Wrap-up/big picture: Now, I just have a few more questions to wrap up our conversation.

14. Would you recommend that other communities develop a food policy coordinator position? Why or why not?

Follow-up: if so, are there any key ingredients they may need for success?

15. Is there anything else you think I should know but we didn't touch on?

16. Do you have any questions for me?

Again, thank you so much for your participation. I've really enjoyed speaking with you. Is it OK if I circle back to you if I have any additional or clarifying questions?

**End Interview.**

\* Note: If unable to find job description online, be sure to request one from interviewee \*

## Exploring the needs of urban producers in a rural state: A qualitative needs assessment

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### Abstract

Urban farming is a phenomenon rising in popularity across the United States. Investigating the needs of urban farmers in a predominately rural state is important in informing future programming and technical assistance for these clients. This qualitative study used semi-structured, in-depth interviews that investigated the perceptions, needs, and experiences of Arkansas urban farmers and their inter-

actions with the University of Arkansas Division of Agriculture Cooperative Extension Service. Interviews were conducted with 16 urban farmers in Northwest and Central Arkansas. The interview data revealed highly individualized needs based on the operation size, years in operation, and mission of each urban farmer interviewed. While needs var-

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ied, some were consistent, such as market pricing, co-ops, and access to appropriate equipment. Participants also revealed a positive perception of Extension, though they cited that the organization did not always have resources specific to small-scale, sustainable farming. Building from the Community Food System Development Framework for Change and informed by the AgroEcological-Educator theory, this study provides urban farmers' insights and contextualizes urban farming in a predominately rural, southern state. Potential remains for increased collaboration and communication between Arkansas urban farmers and Extension. This article demonstrates the diverse needs of Arkansas urban farmers, which can be used by Extension and sustainable agriculture experts to inform research about urban and sustainable farmers in their respective states.

### **Keywords**

Urban Agriculture, Cooperative Extension Service, Local Food, Needs Assessment, Sustainability

### **Introduction**

Urban agriculture and local food production play an important role in community food systems by providing nutrition, increased food access, green infrastructure, economic development opportunities, urban environment resiliency, and social and cultural identity enhancement for community members (Ackerman et al., 2014; Fricano & Davis, 2020; Jones et al., 2021; Kopyawattage et al., 2019). For cities in the United States, the primary drivers of urban agriculture include food security, local food system development, health and nutrition, food waste reduction, social justice, and environmental sustainability (Bellows et al., 2010; Reynolds, 2011; Rogus & Dimitri, 2015; Stevenson et al., 2007; Surls et al., 2015). Many local food movements and urban agriculture actors frame their work around organic food, agroecology, food security, food waste, and food justice (Beck, 2017; Stanko & Naylor, 2018) and are motivated by social and environmental rather than economic factors (Ghimire, 2008). According to the literature, many characteristics contribute to successful urban agriculture operations. Successful operations are characterized by entrepreneurship, innovative culti-

vation techniques, land, consumer demand, and access to labor, capital, and effective distribution channels (Fricano & Davis, 2020). However, some of the shortcomings of urban agricultural research are revealed in the scale of examination. Research has focused on individual success stories, case studies, and hyperlocal community surveys. Additionally, the geographic focus of urban agriculture research has been the Northeast and West Coast of the U.S. (Guitart et al., 2012), leaving research gaps for southern states (Fricano & Davis, 2020).

The proliferation of interest in urban farming has led to greater attention from urban planners, community developers, and local food advocates who envision neighborhood revitalization and increased food access as the benefits of urban farming (Poulsen et al., 2017). One organization working at the nexus of food and community development is Cooperative Extension, a "public-funded, non-formal educational system that links the education and research resources of the United States Department of Agriculture, land-grant universities, and county administrative units" (SeEVERS & Graham, 2012, p. 1). Due to this positioning, Extension may play a role in the future of urban agriculture. Historically, Extension has engaged with city food production, though emerging interests in food activism and local food movements introduce new content areas for Extension programming (Clark et al., 2017; Diekmann et al., 2017; Reynolds, 2011). Food activism and local food movements, including community gardens, farmers markets, and community supported agriculture, can work with Extension to promote economic development strategies for increasing community resilience to food insecurity along ideological, social, political, and economic lines (Mok et al., 2014; Pettygrove & Ghose, 2018; White, 2017). Despite its potential for bolstering community food system development, urban food production is not without its own set of challenges. Among these challenges are the significant cost and barriers to development, such as access to infrastructure, adequate farmland, and technical expertise to compete in the marketplace (Lyson, 2004).

Extension is an outreach entity that can provide beneficial resources to urban farmers to help bolster their economic and market activity, and

thus, through education or praxis, can help buffer practitioners against the risks of operating in the local food system (Jayaratne et al., 2001; Lyson, 2004; White, 2017). Extension is positioned to assist with the growth and development of local food systems, as it is a source of expert information and can facilitate connections between community actors and provide resources for capacity-building (Raison, 2010). Extension professionals also serve as change agents in leadership roles and cross-sectoral collaborations to further enhance community food system development (Fitzgerald & Morgan, 2014; Philyaw Perez, 2016). According to Dunning and colleagues (2012), Extension works within an established structural and relational network with the potential to “foster collaboration and catalyze institutional change in food systems” (p. 99). Investigating the perceptions, experiences, and needs of urban producers and other actors working to develop local food systems is important as an entry point for bridging gaps between Extension and local food system activities. These investigations will yield broader discussions of food systems and their complexities and dimensions (Dunning et al., 2012).

Extension programming continually evolves to meet the needs of the public. Extension should create and expand relationships in urban communities to increase accessibility and use of services by an urban audience. However, this is difficult due to limited time and resources for Extension employees (Harder et al., 2019). Extension agents are qualified to work as change agents with urban farmers by building upon longstanding relationships with communities, forming new relationships with underserved communities, and examining local priorities (Clark et al., 2017; Philyaw Perez & McCullough, 2017). Extension should determine successful strategies for assisting urban populations and environments in improving the welfare of individuals and communities (Harder et al., 2019). One strategic planning focus is to conduct a baseline needs assessment of urban farmers (Schaefer et al., 1992). The needs assessment model allows Extension to engage with urban farming communities and direct programming to fulfill specific, demonstrated, and culturally-responsive needs for underserved communities (Penniman, 2018).

### **Cooperative Extension in Arkansas**

To contextualize the current study, the authors have described the Arkansas Cooperative Extension Service. Extension is represented through offices and agents in every Arkansas county. Extension has a strong presence in the two counties in which participants were located—Pulaski County in the Central Arkansas region houses the state Extension office, while Washington County in the Northwestern region houses the 1862 land grant university. Overall, outside of the two major metropolitan areas in the Central and Northwest regions of the state, Arkansas is rural, and Extension has traditionally focused on conventional agricultural production. However, recent interest in local food has encouraged Extension to explore potential urban and local farming programming (Philyaw Perez & McCullough, 2017). The state Extension office houses the Local, Regional, and Safe Food Systems team, which has spearheaded many local food opportunities across the state.

### ***Arkansas Alternative Agriculture and Local Food Systems***

Arkansas Extension investigated local food movement efforts by conducting focus or working groups at five regional meetups (Philyaw Perez & McCullough, 2017). These regional meetups yielded directories of local food system stakeholders, identified needs and challenges in the local food value chain, and defined the needs of producers, direct marketers, retail buyers, institutional buyers, and technical support and coordination efforts by region. Stages of local food development across the state were highlighted, and local food system development status was contextualized. Philyaw Perez and McCullough’s (2017) project did not target urban agriculture specifically, so Extension would benefit from a deeper investigation into the needs of Arkansas urban farmers. It is important to understand the diversity within urban agriculture and how Extension professionals can develop programming that targets urban farmers’ needs (Reynolds, 2011). According to Philyaw Perez and McCullough (2017), Arkansas’ Northwest and Central regions have experienced the most local food development. However, local food personnel

need technical assistance and training to expand their current capacity and assist with value-chain components. Thus, the present study aimed to determine the needs of local and urban farmers in these regions to help facilitate and expand upon technical assistance programming for local food system development from Arkansas Extension.

### **Theoretical and Conceptual Framework**

Two frameworks guided this study: the AgroEcological-Educator (AEE) theory and the Community Food System Development (CFS) Framework for Change. The AEE theory (Wight, 2013) contextualized the shared social missions of urban farm operations, differentiating them from many of their conventional agriculture counterparts. The CFS Framework (Philyaw Perez, 2016), a practice-based model, guided the needs assessment methodology of this study.

#### ***AgroEcological-Educator Theory***

The AEE theory “provides a novel interpretation of reality and helps individuals locate, perceive, identify, and name food-related phenomena that affect their lives” (Wight, 2013, p.199). As urban farmers often operate within a set of specific social values, such as community-based food activism or environmental sustainability, they are typically more diverse in their missions and less focused on economic factors of production (Dimitri et al., 2016; Ghimire, 2008). The AEE theory evolved from the Agronomist Educator (AE) theory developed by Paulo Freire (Wight, 2013). Freire’s AE theory grew from his seminal work, *Pedagogy of the Oppressed*, which described his experiences supporting and empowering the voices of those in low-income communities as part of Brazil’s Cultural Extension Service (Freire, 1970). The AE theory refers to individuals or groups who use cultural circles “to dialogue with others about the political, economic, and social state of their community” (Wight, 2013, p. 203) and helps contextualize the sociological motivations behind local food movements. Agroecology is an important concept in the AEE theory and enhances the AE theory by focusing on sustainable and alternative agricultural methods. Agroecology is a three-pronged

concept—a scientific discipline, a movement, and a practice—that aims to reduce the environmental impact of traditional production agriculture by focusing on regenerative, sustainable cultivation practices (Gliessman, 2015; Wezel et al., 2009). Wight (2013) argues that, within the AEE theory, people act in their cultural circles to engage and dialogue with others about their community’s social, political, and economic aspects. This notion builds on Freire’s (1970) AE theory. The AEE theory includes a discussion of the paradigm used for challenging oppression and transforming local communities, including food systems.

The guiding concepts of AEE are love, dialogical communication, and praxis (Wight, 2013). Love allows for the integration of humanizing dialogue when discussing politics, religion, development, and food. This construct enables people to see other perspectives and points of view, which is essential to productive dialogue. Dialogical communication helps contributors recognize their role in the natural world and connect their attitudes toward agricultural practices to their attitudes towards nature, personal values, and religious philosophies, thereby encouraging people to talk with, rather than at, others. Praxis, the final component of AEE, is defined as a cyclical dialogue of planning, action, reflection, and evaluation that enables the evolution of the relationship between reality and vision (Wight, 2013; Freire, 1970, 1973). By framing the research design within the AEE theory, researchers can better understand their target population (specifically local or sustainable food actors) and further integrate empathy and rapport into the interview process.

Additionally, positioning the study within an ecological, agronomic focus and social movement literature helps establish a frame of reference specific to local and urban food system actors, a key distinction of this population compared to more traditional production agriculturalists. This framework helps educators, including Extension agents, effectively interact with communities that prioritize social issues over traditional agricultural concerns. Building this relationship with community members will help Extension work effectively with alternative food production networks (Wight, 2013).

### ***Community Food System Development Framework for Change***

Philyaw Perez (2016) defined a community food system as a system that “supports farmers and ranchers to sustainably produce a variety of local foods, creates ways to move local foods to the places where we live, learn, work, and play so that we value and have access to healthy, fresh food and clean water in our community” (p. 4). A community food system relates to various community issues because it operates within environmental, policy, capacity, economic, cultural, and public health structures. The Community Food System Development Framework for Change encourages sustainable food production, harvesting, transportation, and consumption. The five general steps for this framework are to (1) realize, (2) describe, (3) understand, (4) assess, and (5) plan. This project, as similarly detailed in Dobbins et al. (2020), focuses on steps 2, 3, and 4. This article specifically describes the results of an investigation utilizing step 4—the assessment of “current activities and interests in developing new practices for community change” (Philyaw Perez, 2016, p. 27). A beneficial aspect of this framework for urban farming is that it allows space for change conducive to Extension’s operating principles.

This framework emphasizes the importance of assessing current activities focused on developing new change practices and describes the complexity of local food and urban farming operations. While this study does not directly utilize the stakeholder groups described in the local foods meetup report (Philyaw Perez & McCullough, 2017), it identifies the key needs and describes an integral group of local food systems. In addition, it builds upon the framework through a needs assessment with local urban farmers to determine their current practices and potential for change.

### **Purpose and Research Questions**

The purpose of the assessment was to identify the needs of urban farmers in Arkansas’ urban centers to inform future program development. The following research questions guided the needs assessment: (1) What research and resources would be most beneficial to Arkansas urban farmers, (2) What is the perception of Extension by Arkansas

urban farmers, and (3) How can Extension serve Arkansas urban farmers regarding resource, training, and technical assistance?

### **Methods**

Dobbins et al. (2020) developed an operational definition for urban farming in a previous study for Arkansas as “small-scale, fewer than 10 acres, diversified, and sustainable farming within city limits that engages with the market, the community, or both” (p. 17). This definition aided in criterion sampling to recruit urban farmers from the northwest and central regions of Arkansas. Snowball-sampling methods were implemented (Sadler et al., 2010). A participant with desired characteristics from each region was recruited through the researchers’ personal experiences with urban farming communities. These participants recommended future participants based on their social network (Sadler et al., 2010). This multistage and semi-self-directed recruitment method allowed the researcher to reach potentially hidden participants in a state where no known, explicit network of urban farmers exists (Dobbins et al., 2020). In addition, the snowball-sampling method was advantageous as it allowed the researcher to build trust with potential participants by contacting them through their social networks, thereby increasing the likelihood of engagement with the study (Sadler et al., 2010).

The population for this study included urban farmers with both nonprofit and for-profit operations (Dobbins et al., 2020). Potential participants were initially contacted via email with a request to participate in the study (Dobbins et al., 2020). The researcher selected one new source in the northwest region and two new sources in the central region to start a sampling chain when the previous chain was terminated. This method was implemented until no new participants could be recruited.

### ***Instrumentation, Data Collection, and Analysis***

This research was part of a larger study (Dobbins et al., 2020), where the researchers used a semi-structured interview process to collect data for the needs assessment. Dobbins et al. (2020) detailed the semistructured interview methods used in this study. The interview protocol consisted of 13

open-ended questions and one Likert-type question. Constructs in the protocol related to major operational concerns, information sources, trainings and workshops, perceptions of and experiences with Extension, and market engagement. The face and content validity of the protocol was determined by three pilot interviews and expert reviewers from the disciplines of agriculture and natural resources, agricultural education, and agricultural communication. Data were collected from 16 interviews, which lasted an average of one hour each, were audio-recorded, and occurred between August and November 2018.

Interviews were transcribed and coded line-by-line (Corbin & Strauss, 2008; DeCuir-Gunby et al., 2011; Dobbins et al., 2020). Axial coding followed, in which the researcher made connected codes derived from the open coding process (DeCuir-Gunby et al., 2011). NVivo 11 was used to determine emergent and protocol-derived themes (from questions and concepts in the semi-structured interview protocol). The researchers used the constant comparative method, which included developing emergent categories and identifying axial codes present in multiple transcripts (Dobbins et al., 2020; Glasser & Strauss, 1967).

Two independent reviewers analyzed themes for trustworthiness and credibility through a codebook (Lincoln & Guba, 1985). The primary researcher developed a qualitative codebook as an audit trail for review to create a shared understanding between the research team; this codebook included the quotations that comprised each theme and subtheme, a definition of the theme, and a calculation of the frequency of references to each of the themes (DeCuir-Gunby et al., 2011; Dobbins et al., 2020). Codes developed through this structural analysis emerged from the raw data (data-driven) and the interview questions (theory-driven/protocol-driven). The researcher used data-driven codes to reduce data into themes, connect themes, and label themes (DeCuir-Gunby et al., 2011; Dobbins et al., 2020; Glasser & Strauss, 1967). The researcher established trustworthiness based on recommendations from Lincoln and Guba (1985), which included peer debriefing of the protocol, a thick description of Arkansas urban agriculture and local food systems, and an audit trail.

## Results

Themes were identified based on responses to interview protocol questions about the major needs and concerns of the participants relating to their operations. Concerns were diverse and varied based on size, mission, and years of operation; common themes included accessing information about market pricing, managing pests sustainably, and creating contractual relationships with buyers in the area. The themes derived from data-driven and theory-driven structural analysis (DeCuir-Gunby et al., 2011) were *best practices*, *production systems*, *issues with city, policy, and zoning*, *resources*, and *reputation of Extension*.

### *What Research and Resources Would Be Most Beneficial to Arkansas Urban Farmers?*

The first section of results highlights areas of research that warrant further exploration and potential resources that would be beneficial for urban farmers in Arkansas. Many responses within the *best practices* theme were operation-specific, including contouring beds to help with erosion, season extension, and soil fertility. Another concern for small-scale urban operations included being “space limited. At the end of the day, that’s ... the challenge of urban agriculture. We are going to come up with creative ways of optimizing our space, but the reality is that land needs to rest at a certain point ... For a small operation to take out half of your production space, that’s a disadvantage of urban farming” (UF 3).

Another issue related to best practices was dealing with pests and disease, specifically for organic operations or Certified Naturally Grown production (UF 7). Additional issues included entering into new markets and securing wholesale contracts. UF 4 expressed a need for “best practices for developing co-ops, or farmer-to-farmer business arrangements, especially in relation to wholesale contracts or special events.” Recommended research included establishing pricing: “It would be nice to have a handbook on that type of marketing. [It] is a real hard thing to research. The USDA shows average prices, but what if you’re chemical-free? Should you have a premium? ... That’s the kind of thing that we come into this and had no idea” (UF 1).



Related to entering into new markets, UF 2 stated, “we’re always looking for new markets. [City] is a growing local food community, and I feel like we can produce a lot more than we are. The reason we don’t is because we don’t have a market for them.” UF 15 stated, “the only thing that’s keeping us from pursuing other markets is we can’t grow enough ... we sell almost everything we grow.” They expressed interest in information about:

What kind of market would fit what kind of farm, because whether you grow for the farmers market, which you’re going to grow a lot of varieties for, versus a potential commercial market where you just maybe need five or six big varieties of a lot of volume. That’s real critical. (UF 15)

There was also a demonstrated need for wholesale markets:

I’ve started to, in the last couple of years, go into more wholesale. More volume, less cost, but it all goes. ... I’d rather take a little bit less to know everything I just harvested today is gone rather than a higher price, sitting at the market and only 60% moves. If you sell all of it wholesale, you pretty much make the exact same money if you sold ... 70% retail. (UF 7)

UF 4 expressed a desire for “consistent contracts as opposed to going to the farmers market and praying.” One participant stated, “a current problem we have is just trying to find ... what wholesale prices [are] for selling to restaurants or what a decent retail price is” (UF 10). Marketing to restaurants and securing contracts was described as a stressor for several participants (UF 12, 11, 15). One participant stated:

As a farmer, being reassured that you know that you’re going to be able to sell your product or get it to a place takes a lot of stress off of you. If you could get a contract with an organization or a restaurant ..., just a straightforward contract ... If I know I have a guarantee restaurant or other purveyor that’s going to

take those 40 pounds, it’s so much weight off your shoulders. (UF 11)

Overall, markets and contracts were an oft-mentioned issue among the participants. Extension may provide resources in this area, facilitated by their established connections with food systems work in traditional production agriculture (Clark et al., 2017). Nevertheless, markets and niche outlets may be more appropriate distribution channels for these farmers, in addition to securing wholesale contracts with local vendors.

*Production systems* was the most prevalent emergent theme. This theme encompassed production issues on small-scale, organic-type farms and ranged from growing the business, maintaining a workforce, acquiring and maintaining funding, being a nonprofit, involving the community, and maintaining a sustainable operation:

The way we farm and what we farm and how it’s done is small-scale and not super profitable. You have a perishable product that you have to move every couple of days, or else you make no money off efforts that you put months into. It’s definitely a challenge. (UF 7)

One issue within this theme was the retention of a workforce (UF 6, 7, 9, 11, 13). One participant explained:

I know it sounds kind of counterintuitive, but we have the ability to farm on a bigger area than we have the ability to afford staff for. I’m the only one on staff for the garden right now ... It’s a full-time and a part-time person I usually lose because of the time of the year, and so you’ve got to do it all yourself.” (UF 13)

UF 7 echoed this challenge by discussing the difficulty of hiring employees to work on the farm:

If I hire somebody, then we have to basically grow more food just to pay for them. I can keep up and make a good salary based on my labor. As soon as I bring somebody else to the mix, they don’t work as hard as I do because they’re getting US\$10 an hour.

Several participants expressed difficulty with volunteer retention, which is a challenge for both nonprofit and for-profit farms. One participant noted, “I don’t have a lot of long-term retention in volunteers. I have a few that are strong and steady, but not very many. Every quarter you have to rebuild the base” (UF 11). UF 13 stated, “grants aren’t going to pay me to have six people running this farm [and] grants don’t pay for my salary.”

This workforce issue alludes to another subtheme: *funding*. This subtheme included issues for several nonprofit farms. UF 1 indicated that they experienced problems with grant-awarding processes. UF 4 cited consistent funding as an issue for their operation. One participant stated, “if it wasn’t for those grants, ... funding would have been an issue” (UF 16). UF 1 stated that being a nonprofit “is just the biggest hurdle—grants, ... where we fall ... [as] a nonprofit or a farm.” Another participant described difficulty with the loan process:

I tried to take out a small loan to increase my area that I was going to be growing. When it came time for the loan signing, they told me that I would have to give everything that I earned until the loan was paid off. I can’t live like that. (UF 10)

Thus, with nonprofit, local farming organizations, grants were both a source of frustration and income for farmers. The sustainability of funding sources was a concern of several farmers and, therefore, a potential area where Extension may serve as a resource to urban and local farmers. While many operations are not primarily motivated by economic production, it remains an important factor in the sustainability of these operations.

The subtheme of *community involvement* included educational programs on the farm, volunteering, or patronage. One participant expressed an issue with community involvement on the farm:

There’s a lot of people that like the idea ...but don’t come out and take full advantage of it. ... I’ve tried to reach out to our garden participants to see [what changes they would like to see]. [I would like] access to [information

about] successful community gardens and the different barriers that they overcame and the things they changed to make it more suitable for the people they serve. (UF 16)

While Extension may not provide specific recommendations for increasing patronage, Extension professionals’ knowledge of and experience with production agricultural agritourism operations may transfer to some community involvement issues expressed by participants.

The subtheme *sustainability of the operation* covered topics of health and the longevity of the operation. UF 13 stated that their biggest concern was “getting hurt because I do all of this by myself ... it’s a one-person operation ... if I get injured ... it all falls apart.” Another participant echoed this sentiment:

Farming ... hurts. It’s stressful. If you’re not paying attention, you get wrapped up in it, so if you don’t force yourself to pay yourself a certain paycheck, if you’re just starting off and it’s the first three years, or if you aren’t able to set a maximum number of hours you work. If you don’t tell yourself, “I’m only going to work 40 hours a week,” then you just get wrapped up in it, especially during the growing season. (UF 4)

Another participant expressed concern over the sustainability of their operation when they stated:

If I leave, how will it do? ... I have a background where I can do a lot of stuff myself. ... it’s not just farming, so I think that’s one of the big concerns ... because you really can’t find a farmer very easily ... I think that’s probably one of the biggest concerns a lot of farms have. Not just my farm, not just nonprofit farms. When the person running this farm no longer is able to or wants to run this farm, is there anybody to come in and take over? (UF 13)

Participants expressed concerns about their safety and how this relates to the sustainability of their operation, a compounding factor to the previ-

ously mentioned issues of funding and workforce maintenance. Extension may provide resources through entrepreneurship and economic development programming specifically tailored to local food actors.

The theme of *issues with city, policy, and zoning* includes challenges related to farming in public, residential, and city spaces (UF 1, 2, 6, 8, 11). One participant expressed:

We haven't really had a problem with this yet, but I'm always anticipating someday we'll have a problem with the city because currently we're not zoned agricultural. This is residential zoning, ... if we want to expand or want to have an onsite farm stand .... I hope we can work something out with the city to where that's possible. (UF 2)

Some participants cited issues in farming in public spaces (e.g., operations located on city-owned property) (UF 4, 8). UF 11 expressed their greatest concern as "public access to the garden ... [which] poses food safety concerns." UF 8 stated, "I would [say] the greatest challenge is just being in a public space and being in partnership with the city, there's a lot more regulations." One participant cited issues with city policy preventing them from having chickens on their operation for two years (UF 1). One participant described problems getting a Certified Naturally Grown (CNG) certification in a city, "[where] people do spray around here, like landscaping companies" (UF 2). Due to Extension's position at the nexus of food systems, policy, and community development, educational programming may assist farmers with these issues specifically related to farming in urban environments.

### ***What is the Perception of Extension by Arkansas Urban Farmers?***

The theme *perception of Extension* was derived from targeted questions about participants' experiences with Extension. All participants had previous interactions with Extension to varying degrees and rated Extension 3.2 out of five, indicating it is a moderately helpful resource for urban farmers (with one being not at all helpful and five being

very helpful). Generally, participants had positive perceptions of and experiences with Extension. However, they felt Extension lacked specific resources that would be helpful for local or urban food operations, identifying a gap in programming.

Many participants identified different potential opportunities for Extension to interact with, build relationships with, and more appropriately serve this population. These opportunities ranged from general to operation-specific. One example of a way Extension could more appropriately serve Arkansas urban farmers was described as follows:

I think some information [for] small vegetable farmers would be nice. One of my complaints is if you look up yield information, they'll say, "this is how much squash per acre you get," or "this is how much per hundred feet" and the problem is that squash produces for like five or six weeks, and I need to know how much I'm going to get each week. Is that going to be 200 pounds per week or 200 pounds for the whole season? [All] their education stuff is all very much aimed at people who just plant and harvest one time. (UF 10).

Other suggestions included a comparison to North Carolina Extension Service, which has "a pretty amazing [agricultural] Extension with ... a full-time person geared toward small-scale [and] sustainable farmers" (UF 9). UF 10 also suggested another helpful resource, similar to one produced by Oklahoma's Extension Service, would be "a survey on [farmers market] prices. And then publish it online. They put the low prices and the high prices on end products, something like that would be really useful." Another suggestion included a "collaboration between a few states" (UF 13).

Several participants discussed perceived weaknesses with Extension, describing it as "very friendly but not equipped to help with organic production information, maybe under-equipped" (UF 3). In addition, many participants expressed their perception that Extension did not have many resources for small-scale, organic-type farming, with one participant stating:

I still feel like [Extension] is more focused on big [agriculture], and non-organic, so if I had a question, mine would be a small-scale, diversified, sustainable, organic farming question. I don't feel like they would be my number one person to reach out to. I know that they're working to remedy that ... I don't have a lot of experience with [Extension] just because I haven't really wanted to. (UF 2)

Another participant expressed a similar sentiment:

It appears to me that most of [Extension] is geared toward larger-scale farming and not small-scale urban or sustainable farming .... That doesn't mean that I haven't pulled information and applied it to what I'm doing, but rarely do I hear, "Hey, we're doing this small-scale." ... Which, I understand. Most people don't do what we do. There's a lot more large-scale farmers that need that information. [I] pick and pull from that, which is fine. (UF 7)

Though several participants expressed a lack of resources targeted for their type of operation, they explained that agents were helpful with questions. One participant explained:

[Resources] in general don't really seem geared towards small-scale, or organic, or urban, but if you call an agent, they're going to get back to you. Arkansas is much more of a conventional, large-scale [agriculture] state, so that's where most of the money and funding [is] .... From everything I hear, [Extension] is overworked, underfunded, over-stretched, and it keeps getting worse. (UF 4)

One participant expressed a desire for Extension to have "someone focused on sustainable agriculture and not focused on conventional commodity crops" (UF 8). Another stated, "Arkansas Extension is mostly row crop [and] they have knowledge about lawns [but] that's not real helpful to me" (UF 9). Lastly, another participant expressed a desire for Extension to "reach into minority communities" (UF 6).

### ***How Can Extension Serve Arkansas Urban Farmers with Resources, Training, and Technical Assistance?***

*Resources* encompassed the responses to a question about the needed or helpful resources desired. For example, several participants expressed frustration over issues with finding affordable and appropriate resources and equipment for small-scale, organic-type farming, such as "organic soil, organic compost, organic straw, chicken manure, tools and implements" (UF 2).

One participant explained, "farm stores and farm supply stores are kind of hit or miss, especially going with organic or small-scale" (UF 4). They added, "if you're super small scale and you don't have a tax ID number ... you have to pay retail rates [at most] farm stores or garden centers."

Other participants described operation-specific resource needs, such as when UF 10 said they needed a tractor. UF 6 stated a need for "updated equipment." One participant furthered this by saying, "if we had a decent innovative tool sharing program ... that would be a huge help. If I could try out some of the tools that I'm interested in buying that are at high cost before I buy them" (UF 9). This introduced another concept referenced by multiple participants: *Co-ops*. UF 2 stated, "we need a farm co-op that caters to small farms." UF 10 also expressed interest in accessing equipment through a cooperative. Extension may help establish cooperatives for small-scale, organic-type farmers, serving as a point of contact for partnering with other community organizations or regional businesses that can offer the resources needed by these farmers.

### **Summary and Discussion**

Overall, while participants reported positive experiences and interactions with Extension, using words such as "friendly" and "pleasant," they felt Extension did not offer enough small-scale, organic-type farm support and was underequipped to assist with urban farming. Opportunities for assistance and relationship building were identified, and Arkansas Extension is recommended to evaluate the potential of these opportunities for programming and technical assistance. Most participants were open to increased communication and collaboration with

Extension, which could expand relationships with urban farmers. Utilizing Extension personnel, who are viewed favorably among urban farmers, to host and promote programming is ideal. General findings from the study revealed potential program areas and a need for individualized or specific assessments. However, given that Dobbins et al. (2021) found that Arkansas agricultural Extension agents lacked a nuanced and specific understanding of the needs of the state's local and urban farming populations and that participants in the current study were unaware of Extension's involvement with some local food programming, a significant gap remains in Extension advertisement and resource development. While many concerns were operation-specific and individualized, several general needs were identified, such as market pricing and strategies, co-ops, access to appropriate equipment for small-scale farms, and maintenance and/or retention of an operational workforce.

Participants did not fully know the scope or relevance of Extension resources available to urban operations and could not comprehensively explain how they could be assisted. This could be attributed to a lack of advertising of Extension participation in programs and services used by urban farmers. Extension should focus efforts to market themselves to this population to increase awareness of the available services. Additionally, it is important to note a unique quality of Arkansas Extension: the state office for Extension and the main university campus are separated geographically by three hours. This physical separation may contribute to misunderstandings or missed connections about the direct relationship between Arkansas Extension and the land-grant university in Arkansas. While there are potential upsides to the separation, it remains a unique aspect of Arkansas Extension and should be considered when interpreting the results. Due to this separation, Arkansas Extension professionals are encouraged to advertise their involvement more directly in local food programming and events to highlight their availability as a resource to local and urban farmers in the region.

The needs of Arkansas urban farmers aligned with the perspectives of county agents on the outreach and educational scope of Extension services

(Philyaw Perez, 2016). This scope included marketing and promotion, best specialty crop production practices, development of cooperatives, and sustainable agriculture. Thus, potential programming avenues for local food and urban agriculture exist. Extension in Arkansas can build off the positive reputation discussed in this article and has the potential to understand the limitations and challenges of developing urban agriculture in a rural state. Growing the urban farming resources and programming offered by Extension should meet the needs of urban farmers while improving the organization's reputation.

The interview data's highly individualized and operation-specific results seemed to reflect a phenomenon related to urban agriculture in a rural state, rather than generalizable ideas about urban farming and how to better equip Arkansas urban farmers. Thus, future research in this area would benefit from following a phenomenological research design, more focused on the individual experiences of these farmers. Though this study was designed as a needs assessment, the analysis revealed the inability of the data to fit into a traditional needs assessment design. A phenomenological lens might better allow the diversity of urban farming experiences to demonstrate the needs of this Extension programming area. A phenomenological study would enable researchers to focus primarily on the participants' lived experiences as urban farmers in Arkansas and influence the research design, rather than a needs assessment to Arkansas Extension about programming needs. Once the phenomenon of urban farming in Arkansas is better conceptualized, Extension professionals will be better equipped to design needs assessments for targeted trainings and resource availability to the population of interest. Phenomenology, a methodology aligned with the constructivist worldview or paradigm, will allow for emphasis on the individual interpretation of participants' experiences, as the researcher aims to "describe the lived experiences of individuals about a phenomenon as described by participants" (Cresswell, 2014, p. 42). These descriptions then allow for a more nuanced understanding of an ill-understood population of farmers within the state. Additional future research could quantitatively analyze a larger sample of

local, small-scale farmers in the state (avoiding the use of the term “urban” as recommended by Dobbins et al. (2020) due to a lack of participant identification with the term) to generalize needs for not only Arkansas but for other state Extension services in the southeastern U.S.

The Community Development Framework for Change (Philyaw Perez, 2016) utilized in the current study emphasized the importance of identifying the activities of and technical assistance deficits for local food system actors, as completed through the needs assessment design. The current study provided information for Extension programming and extended the work of Philyaw Perez and McCullough (2017) by investigating a specific group of local food system actors. Philyaw Perez’s (2016) framework encouraged the development of a plan of action for opportunities to develop and implement food system change in these regions through a lens that works within the Extension organization and is complementary to its mission. In addition, Philyaw Perez’s (2016) framework offers steps and materials to conduct assessments with communities experiencing or desiring change so that the researcher encourages those interested in food system development to use this resource when planning for specific communities or populations.

The AgroEcological-Educator (AEE) theory (Wight, 2013) provided key insight used in conjunction with the needs assessment to allow the researchers to create an interview protocol appropriate for a farming population more motivated by social and environmental factors than economic ones (Ghimire, 2008). While the needs assessment findings described here should be enhanced through future phenomenological and quantitative research, the AEE theory still provided needed context for working with local or nonproduction agriculture farming populations. An important component of AEE theory was that individuals act within cultural circles to dialogue with peers about their community’s social, political, and economic aspects (Freire, 1970; Wight, 2013). In Arkansas, local, urban farmers were a distinct community motivated by social issues and environmentalism, two concepts deeply entrenched within sociopolitical and economic contexts. Thus, AEE theory

positions these communities as distinct and highlights mechanisms for interactions with these communities, providing frameworks for facilitating dialogue. For the current study, the three primary components of the AEE theory enhanced the interview process. *Love* encouraged humanizing dialogue and empathy. Dialogue is critical when bridging gaps between Extension and potentially underserved populations, and Extension practitioners should investigate the farming needs of these groups (Penniman, 2018). The interview process framed by AEE increased contextual understanding and helped develop rapport with participants during the interview process and may be a beneficial resource for Extension personnel desiring increased literature and knowledge related to urban and local farming populations. *Dialogical communication* allowed the researcher to understand the participants’ perceptions of their motivations for urban farming. By investigating the context of urban farming in Arkansas, the researchers expanded the dialogue created through *love*. They built foundational understandings to assist with program creation, dissemination, messaging, and relationship-building between Extension and Arkansas urban farmers (Dobbins et al., 2020). While AEE has the potential to be a usable theory for Extension personnel, with its focus on social and environmental motivations (informed through agroecology [Wezel et al., 2009]), utilizing this theory in practice may require train-the-trainer type sessions for appropriate implementation. The researchers encourage Extension personnel to familiarize themselves with aspects of the theory, specifically related to the social and environmental motivations for operations and create space for nuanced understandings of alternative food system populations.

Most participants expressed operation-specific and individualized needs; thus, making specific recommendations for practice or programming for all Arkansas urban farmers is difficult. Still, Arkansas Extension should develop a plan to support specific programming needs, based on the general needs identified in this study, such as market pricing and strategies, co-ops, access to appropriate equipment for small-scale farms, and maintenance and/or retention of an operational workforce. These are only general programming recommen-

dations; Extension should conduct more individualized assessments, either qualitatively or quantitatively, with a larger sample of local, small-scale farmers in the state. Future research should involve needs assessments with a more specific approach, such as with urban farmers who grow a certain type of crop, farmers who work on nonprofit farms, or farmers who are just beginning their operations. This should result in specific recommendations for programming, resources, and

technical assistance. General resource recommendations from the current data set might include guidance on obtaining affordable, small-scale farm supplies; potential for establishing cooperatives for small-scale farmers, and; purchasing affordable on-farm organic inputs. Extended investigations with this population could result in an opportunity for in-depth interaction and relationship building between this population and Extension.

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# ‘Harvesting a participatory movement’: Initial participatory action research with the Jewish Farmer Network

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## Abstract

The Jewish Farmer Network (JFN) is a North American grassroots organization that mobilizes Jewish agricultural wisdom to build a more just and regenerative food system for all. This paper presents methodological findings and reflections from the initial stages of a participatory action research (PAR) collaboration led by the authors and JFN organizers centered on *Cultivating Culture*, JFN’s

inaugural conference in February 2020. For this early iterative phase, we used a PAR approach to guide event ethnography to both facilitate and understand collective movement building and action. This work included pre-conference collaborative research design, a participatory reflection and action workshop with roughly 90 participants, eval-

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uative surveys, short ethnographic interviews, and ongoing post-conference analysis with researchers and movement organizers. While this data was first analyzed and organized for JFN's use, we present findings to demonstrate the effectiveness of foregrounding event ethnography within a PAR research design at an early stage of movement formation, especially how elements of event ethnography can address some of the limitations of using PAR with a nascent network of farmers. Our work revealed themes in the movement of Jewish farming: the politics of identity in movement building, the tensions around (de)politicization, and the production of Jewish agroecological knowledge. We reflect on the utility of using PAR to frame scholar-activism and propose future inquiries for Jewish agrarianism.

### Keywords

Participatory Action Research, Agroecology, Jewish Farming, Event Ethnography, Scholar-Activism

### Introduction

The Jewish Farmer Network (JFN) is a grassroots organization that was founded in 2017 and has since connected with over 2,000 farmers. Working at the nexus of sustainable agriculture, food justice, and Jewish life, JFN mobilizes "Jewish wisdom to build a more just and regenerative food system for all" (JFN, n.d., para. 1). The network began when two farmer-organizers recognized a collective reverence for the interconnections between Jewish heritage and farming, and the desire for Jewish farmers to build community around the ethics and rhythms of Jewish agriculture. JFN began to facilitate dialogue among Jewish farmers who find both spiritual and professional nourishment in turning to their own agricultural traditions instead of orienting toward others' cultural or ancestral practices.

In February 2020, JFN hosted *Cultivating Culture*, a four-day conference of Jewish farmers at the Pearlstone Retreat Center in Maryland. This event gathered over 160 people primarily from North America, along with Europe and Israel, in order to build community, share Jewish farming knowledge, and celebrate *shabbat* (weekly day of rest). This was the first large gathering of Jewish

farmers in North America in recent memory, filling a shared need for individuals connected to both Jewish and farming spaces. It was an opportunity to direct and catalyze a growing movement that embodies justice, regeneration, and ancestral connection to the land and each other. The conference was the focus of our event ethnography, where ethnographic methods were used to generate thick descriptions of the participant experience at a multiday event (Aguilar Delgado & Barin Cruz, 2014; Holloway et al., 2010). The conference also marks the beginning of a still-ongoing participatory action research (PAR) process, the first year of which we explore in this paper.

Our research objectives are twofold. First, we develop and demonstrate the potential for using event ethnography methodology within a PAR research design to facilitate collective movement-building and action at conferences. Secondly, we illustrate the role these methods play in the formation of a nascent social movement while holding the long-term visions of a cyclical PAR process.

We show how our use of event ethnography methods within PAR supports community-engaged research relationships and a thick description of JFN's organizing that we use to frame our scholar activism. Moving toward a radical food geography praxis (Hammelmann et al., 2020), we strive to address the "dearth of studies of alternative agri-food movements and great potential for collaboration between academia and agri-food movements" (Fernandez et al., 2013, p. 123). Given a similar lack of scholarly attention to Jewish agrarianism, this paper lays out future directions for work on Jewish farming, agroecological knowledge, and land ethics.

This project was initiated by two geographers with backgrounds in Jewish farming and agroecological education. We both have extensive contacts in the field dating back to our pre-academic careers in both Jewish and secular farm-based education. These longstanding commitments to the field of Jewish farming and the resulting relationships we tend are integral to our ability to blend academic questions with grassroots social organizing.

Besides providing insights on our methodology, our research process revealed tensions re-

garding the politics of identity in movement-building and the processes of agroecological knowledge production and exchange. We continue to ask questions such as: How can PAR support the inclusion of excluded voices in this movement? What can PAR reveal about the tensions around (de)politicization of a movement that might engage some participants and alienate others? What role is PAR playing in agroecological knowledge politics and production?

This paper begins with a brief background on JFN's emergence within the Jewish farming movement, and how we conceptualize the connections between Jewish farming and agroecological movements and practices. We foreground our methods with a literature review of ethnography at field-building events and PAR within agroecology, with an eye toward how they can complement each other in an early-iterative movement phase. We then explain our methods before, during, and after the conference. The findings section explains the interrelated results from the participatory workshop, surveys, ethnography, and data analysis, and the initial outcomes of our PAR process. We then discuss how we use PAR to frame our scholar-activism, the implications of using PAR and ethnography at an early stage of organizing, and our future outlook on this work.

### **Jewish Farming, JFN, and Agroecology**

The JFN has myriad roots in a vast web of Jewish environmental organizing in North America. The network's founders first convened a group of Jewish farmers casually over lunch at the 2016 Hazon Food Conference,<sup>1</sup> an annual meeting of culinary experts, farmers, activists, artists, and Jewish leaders interested in improving community health and sustainability through developing deeper relationships with food and farming. While a collection of Jewish Community Farming (JCF)<sup>2</sup> organizations focuses on the integration of agriculture with experiential education and Jewish life, this movement supports the development of *institutionalized* educational nonprofits. JFN organizers recognized a gap and an opportunity to organize a community:

individual, small-scale, and/or production-oriented Jewish farmers or farmworkers have little or no formal networking connections to, knowledge-sharing pathways with or financial support from the larger JCF institutions. With JFN's founding, dispersed and diverse farmers come together around a shared need to connect with Jewish farming knowledge, to find a community of peers, and to be seen equally in both their Jewish and farmer identities.

There are synergies between Jewish farming frameworks and agroecology which, when combined, can bring cultural specificity to sustainable or ecological farming. Agroecology is the science, movement, and practice of sustainable agriculture and resource management (Altieri, 1989; S. Gliessman et al., 1998; A. Wezel et al., 2009) based on the application of ecological principles such as recycling, efficiency, diversity, regulation, and synergies (Francis et al., 2003; Wezel et al., 2020). Agroecology is also defined as “a social movement with a strong ecological grounding that fosters justice, relationship, access, resilience, resistance, and sustainability” (Gliessman, 2013, p. 19). While much of the agroecological literature focuses on resource-poor farmers in the global south (Altieri, 2002), and not all Jewish farming is agroecological or even small-scale, Jewish farmers' reclamation of traditional agricultural knowledge and practices are in line with agroecology's focus on using traditional knowledge to the benefit of agroecosystem health (Altieri, 2009; Alzate et al., 2019).

What makes Jewish farming Jewish? Jewish farmers turn to ancestral texts, such as the Tanach, Talmud, and Pirkei Avot, for agricultural knowledge frameworks and practices around soil care and composting, seed keeping, closed-loop nutrient cycling, crop planning, animal husbandry, and cycles of rest and release for both the land and those who labor. Growing and processing culturally important plants such as cucumber (Janick et al., 2007), barley, grapes, wheat, and garlic provide material and spiritual connection to the cycle of the Jewish agrarian calendar through foodways and the body. Observing *shabbat*, the weekly day of rest, is a

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<sup>1</sup> For more information: <https://hazon.org/calendar/hazon-food-conference/>

<sup>2</sup> For more information: <https://www.jewishcommunityfarming.org/about>

mechanism for honoring labor, learning, and cycles of time.

Jewish farmers engage with longer cycles of time, which most notably includes *shmita*. Meaning “release” in Hebrew, *shmita* is a Jewish agricultural law that structures time and land management in cycles of seven years. Although it is a biblical law, some modern Jewish farmers and environmental organizations in North America are reengaging with *shmita* today as an agroecological value and practice. In brief, during the seventh year, Jewish law mandates that agricultural lands should be not cultivated, must become communal land (i.e., fences must be removed), and that all debts are forgiven.<sup>3</sup> At the soil level, *shmita* leads to microbial, nutrient, and structural regeneration. At the community level, *shmita*’s economic restructuring promotes the redistribution of land and capital. On a spiritual level, redistribution and release are practices of freedom. The practice requires farmers to perennialize growing spaces and preserve food to survive, steward wild edibles, think on multiyear production cycles, share resources, create mutual aid networks, and practice nonproductivist ways of being. Such a reorganization of the food system through applying *shmita* principles is a political agroecological movement approach, on which JFN<sup>4</sup> and other Jewish environmental organizations<sup>5</sup> are dialoguing and acting.

### **Theoretical and Methodological Framing: Event Ethnography and PAR with Farmers**

Event ethnography is a data collection method that includes participant observation, field journaling, interviews, audio recordings of sessions, and collection of other informational material (see, for example, Garud, 2008, and Zilber, 2011). The method generates thick description that includes in-depth accounts of participants at a defined event (Aguilar Delgado & Barin Cruz, 2014), allowing event organizers to understand the participant experience of their events (Holloway et al., 2010).

It has been used in conference settings such as the policy-focused World Conservation Congress (Brosius & Campbell, 2010) and the multidisciplinary creative gathering Emerge (Davies et al., 2015). Event ethnography has contributed to the literature on field-configuring events (FCE), which is defined as a temporary gathering where people from diverse organizations come together to “announce new products, develop industry standards, construct social networks, recognize accomplishments, share and interpret information, and transact business” (Lampel & Meyer, 2008, p. 1026).

Participatory action research is an approach that brings together diverse stakeholders to integrate research, reflection, and action as an iterative process that engages participants at multiple phases of the research cycle (Cahill et al., 2010; Cahill & Torre, 2007; Fortmann, 2008; Kemmis & McTaggart, 2000; Whyte, 1991; Wilmsen et al., 2012). PAR with farmers has been used to advance agroecology as a participatory, transdisciplinary, and action-oriented approach (Méndez et al., 2013). It is used to further the growth of alternative agri-food movements across the United States (Fernandez et al., 2013), as well as in Europe (Cuéllar-Padilla & Calle-Collado, 2011; Guzmán et al., 2013), Latin America (S. R. Gliessman et al., 2017; Méndez et al., 2013), Africa (Bezner Kerr et al., 2019; Mapfumo et al., 2013), and elsewhere.

While PAR can adapt to the context of the community and the timing of its implementation, certain limitations are present when a social network is in an early stage of formation. It must be noted that the process of developing a network and building capacity through PAR can require ample time, resources, and social capital from researchers and other stakeholders (Méndez et al., 2017). The PAR literature touches on the variations in PAR implementation, given a social movement’s stage. In some cases, PAR is employed to strengthen nascent local actor networks as an initial step that

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<sup>3</sup> These mandates only apply to lands in Israel, but are being applied in the diaspora today.

<sup>4</sup> At JFN’s 2020 Cultivating Culture conference, *shmita* was prominently featured in the educational programming, with a three-part Saturday evening session block devoted to the topic.

<sup>5</sup> For examples, see Hazon’s *Shmita* Project (<https://hazon.org/shmita-project/overview/>) and *Shmita* Project Northwest (<https://earthministry.org/the-shmita-project-northwest/>).

precedes organizing around other goals. For example, a small- and medium-sized organic producer group in Andalusia, Spain, initiated a PAR project to create stronger social relations among producers and achieve mutual recognition of shared challenges within the organic certification process (Cuéllar-Padilla et al., 2011). In reference to PAR, researchers in Andalusia contend that “the organizational development of local actor networks is one of the strongest points of this methodology” (Cuéllar-Padilla et al., 2011, p. 381).

On the other hand, when social ties exist they can be strategically leveraged in a PAR process to achieve shared interests or other goals. Two projects from Nicaragua leveraged decades-old grassroots and revolutionary organizing relations among rural farmers. *Movimiento Campesino-a-Campesino* (Farmer-to-Farmer Movement) structures made possible the mobilization of 19 NGOs and 833 farmers in order to measure small farmers’ agroecological resilience after the devastating 1998 Hurricane Mitch (Holt-Giménez, 2002). In another PAR process, multiple stakeholders in a northern Nicaraguan community formed a coalition that included agricultural cooperatives, researchers, and NGOs to address the shared goals of ending seasonal hunger, increasing access to healthy food, and transitioning to more resilient food systems (Méndez et al., 2015). In these examples, the projects used both existing historical and ideological ties among actors and participatory facilitation techniques from the *Movimiento Campesino-a-Campesino*, which has historically leveraged agroecology as a core food-sovereignty strategy. The adaptability of both agroecology (Bell, 2018) and PAR (Kindon et al., 2007) to different cultural, political, historical, and environmental contexts is helpful in the formation of a farmer network once there is traction.

While adaptability and methodological openness are strengths of PAR, variation across contexts helps reveal the challenges of using PAR during a nascent phase. Some PAR practitioners stress the immense researcher and staff labor that goes into multiyear processes where research and nonresearch partners collaborate in the earliest stages and continually attempt to harmonize all stakeholders’ needs, capacities, and methods

(Méndez et al., 2013), such as in projects with farmers in Vermont and Nicaragua (Méndez et al., 2015). An ecological study on flower harvest yields in Washington state engaged multiple stakeholders early on and then repeatedly throughout the research in order to define and redefine research questions, ultimately revealing political limitations in system change, resilience, and sustained participation with undocumented workers (Ballard & Belsky, 2010). By contrast, some PAR projects are brought into existing organizations, projects, and partnerships to bring more validity or attention to the issues in policy arenas or to address a specific issue. This was the case in a participatory analysis of the transnational manifestations and leftist praxis in climate change activism (Reitan & Gibson, 2012). Other PAR projects spark researcher-NGO partnerships themselves (Ferreira, 2006), where NGOs are already formed and researchers may need to devote time to both understand and gain access to the network.

Clearly, defining a “movement” or project stage varies from community to community, and PAR during the formation of a farmer network differs from PAR with an established network. When strong social ties or forums for airing differences do not exist, there are limitations on including or hearing from a wide range of possible members. In this study, members of the community are geographically dispersed, have yet to strengthen trust and social connections, may have differing motivations for participation, and may have differing views of the movement. Event ethnography addresses some of PAR’s limitations at this early organizational stage, allowing us to gather diverse voices, guide research questions during the conference, and interpret data through the eyes of more participants.

## Methodology

We use event ethnography within a PAR research design to initiate a long-term research project centered on JFN’s inaugural conference, *Cultivating Culture*. This involved coordination between JFN organizers and researchers before, during, and after the conference to continually harmonize objectives and methods. Given our use of PAR research design here and throughout the paper, it must be

noted that the PAR process is far from being complete; rather, the research discussed here marks its initiation and helps frame our scholar-activist work. Because this conference was pivotal in gathering and helping to define JFN's movement, the community involved in this PAR project is diverse and geographically dispersed. Still, participants come together around a set of shared needs and values, making this community an exciting prospect for long-term PAR. Here, we describe the process of research design and data collection and analysis through planning meetings, interviews, participant-observation, surveys, a participatory workshop with conference attendees, and post-conference participatory analysis. Some of the tasks, such as interviews and participant observation, were carried out exclusively by the two authors in order to respect participant privacy. The two authors are henceforth referred to as the researchers or "we." Many of the research tasks were carried out collectively by the two authors and the two JFN organizers, henceforth referred to as the "research team."

### *Pre-Conference Research Methods*

This process began five months before the conference and developed over a series of meetings held with the research team. During these sessions, organizers consulted us (the researchers) on the four conference goals, which include (1) grow relationships among Jewish farmers, (2) empower Jewish farmers with agricultural wisdom, (3) set a direction for the future of JFN, and (4) prove need and viability of JFN to funders. We explained our ethnographic methods for the conference and our overall PAR approach. The research team discussed how this process could assist in achieving the conference's goals through a final session that would facilitate reflection and collective visioning, and participatory analysis with both conference participants and the research team. We then collaboratively designed the workshop, called "Harvesting a Participatory Movement."

Because the JFN organizers expressed a need for help in documenting the conference for funders, we assisted in designing post-conference evaluative surveys to assess how well it met the conference's goals. This allowed JFN organizers to focus

on other tasks. Post-conference surveys were disseminated on paper as participants left the conference and online the following week. While we were not involved in the design of the online registration, data from the enrollment survey was useful in establishing the demographics of conference participants.

### *Conference Event Research Methods*

During the four-day conference, we did ethnographic work, observing and interacting with other participants in facilitated sessions, in casual gatherings, in lounges, and at meals. Between sessions and meals, we conducted 12 semi-structured interviews with participants to elicit diverse perspectives on how they define JFN, how they contribute to the movement, and what they wish to gain from their participation. Each individual interview was recorded, and we took field notes during and after the interviews. Two times per day, we compared and discussed our notes from the facilitated sessions, informal conversations, and semi-structured interviews. We also met twice during the conference as a research team to reflect and harmonize our reflections with the JFN organizers. These reflections and notes guided preparation for the participatory workshop by generating a list of pre-selected themes for collective visioning of potential projects.

During the "Harvesting a Participatory Movement" workshop, we led over 90 participants through a PAR-informed session that consisted of four parts. First, we introduced the session and the research project. We used song and physical movement, which helped transition participants from the previous plenary session on climate change. Second, we asked individuals to reflect on the weekend by talking about their general conference experience with a partner nearby and then by moving around the room to answer eight questions on large poster paper. Third, people gathered in self-selected working groups to generate ideas based on conference themes. We began by presenting pre-selected themes, then asked participants for additional themes. Participants were asked to form groups based on each theme (e.g., Jewish seed keeping, farm business planning, queer Jews, etc.) by self-selecting the theme they were most inter-



ested in discussing. We asked the groups to develop a project idea related to their theme and to prepare one person to deliver a 30-second share-back. More specifically, groups were asked to describe what JFN could do to support the project idea, including the minimum and maximum ways they could imagine being supported.

Participatory analysis, described as a process of collective knowledge production “*with*, rather than separate *from*, participants” (Cahill, 2007, p. 181, emphasis in the original), took place during this workshop with all participants, as well as with the research team (described below). In the full-group share-back discussion, participants were prompted to reflect on how their ideas and those of other groups could be integrated into JFN programming. The groups provided reflection and analysis on each other’s findings, constituting both participatory data collection and analysis with the greater community of participants. Finally, the session concluded with a song, sharing of seeds, and gratitude.

### ***Post-Conference Research Methods***

These data were collected by the research team on poster papers and in notes and recordings. In a series of post-conference meetings, the research team collaboratively processed and analyzed the PAR session’s group findings in conjunction with interviews and surveys results to provide a comprehensive description of the composition, happenings, and outcomes of the conference, as well as an analysis of how participants view the present and future of the movement. During this analysis, researchers transcribed the individual interviews, then removed identifying information from interview transcripts in order to share content with the JFN organizers while protecting participant privacy. As part of an iterative analysis, the researchers did an initial round of qualitative coding of the interviews based on themes of knowledge production and politics of identity, shared them with the JFN organizers, and restructured the coded themes based on the JFN organizers’ input. The JFN organizers also provided feedback on the participa-

tory workshop, reflected on conference goals, and shared their own experiences of participating in a PAR-guided process. The research team collaboratively authored an internal report that detailed the research and findings from Cultivating Culture.

Post-conference, several outcomes from the participatory workshop have turned into actions, namely in the form of community calls, affinity group meetings, and new projects within JFN (detailed below in the findings), where the researchers are both participants and co-leaders. While the researchers assisted lightly with the planning of a virtual 2021 conference, the research team collectively decided to omit participatory workshops or ethnographic work at the online COVID-19-era conference due to online burnout, feasibility, and workloads. The outcomes from this first year’s iteration of a PAR process continue to guide questions and inform a 2022 research cycle, explained in the future directions section.

### **Findings and Outcomes**

This section presents findings from our interrelated methods. We begin with an overview of the demographics of the farmer attendees from the survey data. Second, our ethnographic data further contextualizes or “thickens” our understanding of participant experiences. Third, we summarize the findings from the participatory workshop, describing how we used event ethnography to inform the workshop. This section concludes by describing the initial outcomes from the PAR-guided research process.

#### ***Survey Findings***

Registration data reveal that attendees were a mix of farmers, aspiring farmers, lapsed farmers, and nonfarmers (Table 1). Participants were mostly younger than 45, with about half being between 26 and 35 years old. About half of the participants identified as female, with 16% identifying as a non-binary gender. Generally, attendees engaged in more “nonconventional” forms of farming,<sup>6</sup> as only 17% of participants stated that they own land and 15% stated that they earn a majority of income

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<sup>6</sup> Many participants worked on communal land owned by nonprofits, synagogues, or other community institutions. This falls outside of “conventional” family farm structures, which make up more than 97% of farms in the U.S. according to the USDA (n.d.).

from farming. However, participants did have a considerable amount of experience, with 30% reporting over 5 years of farming experience, from a poll conducted during the introductory session of the conference (Figure 1). After the conference, over half the participants responded that the conference considerably grew their relationships among Jewish farmers and empowered them with Jewish agricultural wisdom, which were the first two conference goals directed at individuals. For example, the conference considerably or moderately increased the “understanding of the connection between Judaism and agriculture” for 90% of conference participants (Figure 2). These survey findings are further elaborated on below through interview data.

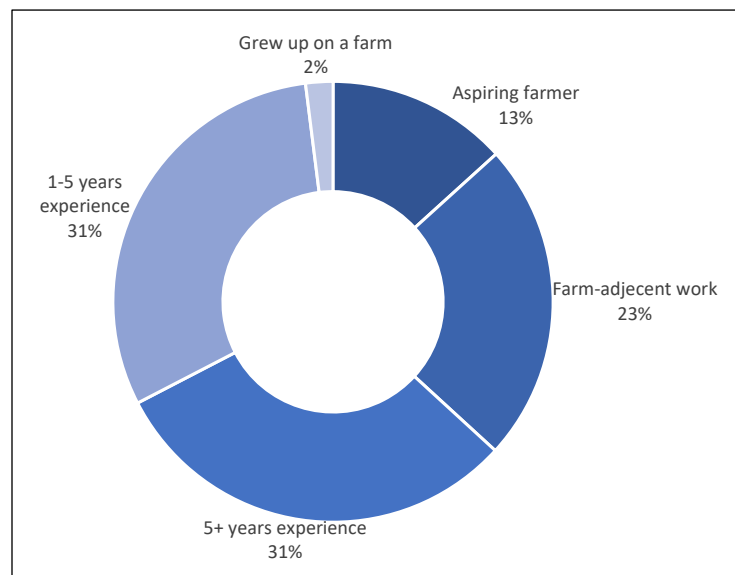
### *Event Ethnography Findings*

Throughout the conference, short semi-structured interviews captured participants’ intentions, observations, and reflections on Jewish farming and on organizing Jewish farmers as a cohesive social movement. These qualitative data informed decisions we made about our participatory workshop and informed collective analysis during the workshop with about 90 participants. These interviews recorded in-depth accounts of why participants showed up to the conference and who they are. Several conversations noted that the “misconception that there is no such thing as a Jewish farmer” is addressed “by there being a gathering like this.” One participant understood the gathering as an opportunity “to explore where Jewish identity and living close to the land intersect, and to inspire young people and hook them up with resources.” While registration data captured how individuals identified, these interviews gave more insight into the politics of inclusion and participation. One person, who identified as a queer Jew of Color expressed appreciation that JFN can “hold space for my queer identity and it be a non-issue. And not only a non-issue but to be more than the only one. . . . Giving that space is a really important thing to overall spiritual growth because oftentimes, those two

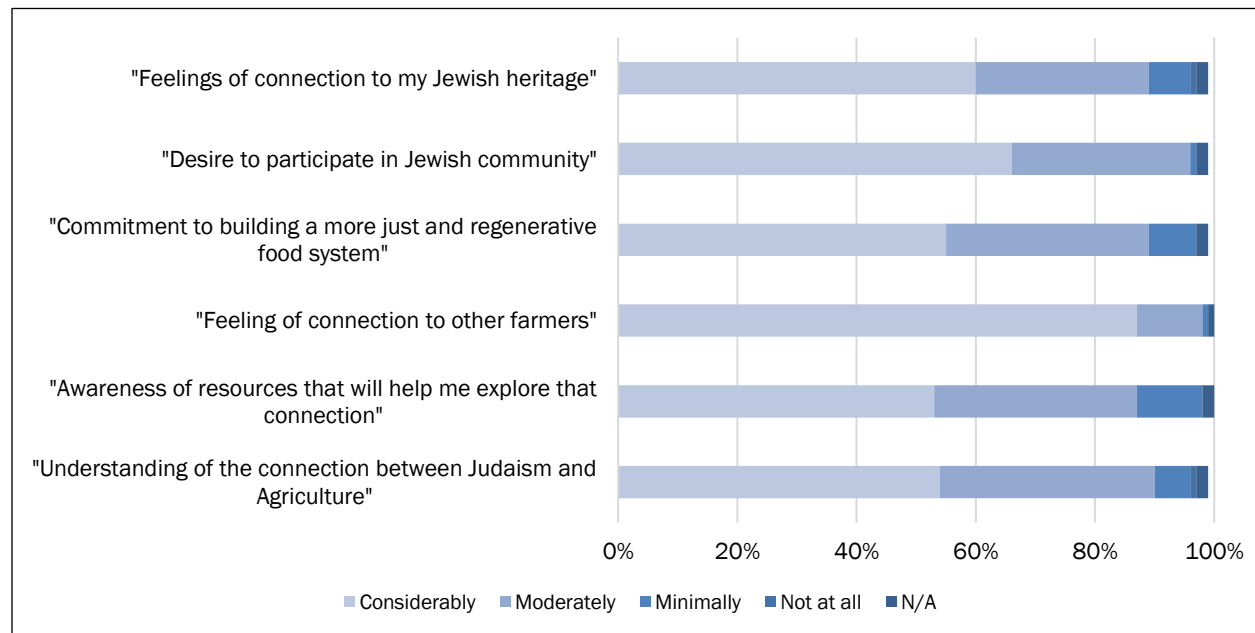
**Table 1. Participant Demographics from Registration Data (n=150)**

Farmer Identification	Percent
Aspiring farmer	12%
Current farmer	49%
Lapsed farmer	9%
Does not identify as farmer but works with land	14%
Not a farmer	13%
Did not report	3%
<b>Age</b>	
Less than 18	4%
18–25	13%
26–35	47%
36–45	20%
46–55	5%
46–65	5%
66 and older	2%
Did not report	3%
<b>Gender</b>	
Female (exclusively using she and her)	53%
Male (exclusively using he and him)	30%
Nonbinary (using they and them)	13%
Did Not Identify with Pronouns	3%
Did not report	1%

**Figure 1. Experience in Farming Among Cultivating Culture Participants (n=82)**



**Figure 2. Post-Conference Survey Responses to Questions on Conference Goals (n=83)**



things are in conflict.”

In understanding who showed up to the conference, interviews gave insight into how people learned about the network. One participant explained that:

At the end of last year, I attended the Biodynamic Conference and then the Young Farmers Conference at Stone Barns back-to-back. Shani [Mink, co-founder of JFN] was at both of those and I found the JFN sticker on the floor, just like on my footpath, and was like *did someone plant this here for me*. It was kind of like a dream that I didn’t know I was dreaming it had literally fallen in front of me. . . . At both of those conferences, she held a little meet-up for Jewish farmers. I was one of the only people at the table at both of those meet-ups.

This story shows the outreach to secular farming communities to recruit farmers who are Jewish into the network. Participants, including the one who shared this story, emphasized their desire to engage with ancestral Jewish knowledge. The participant from above explains that:

It [is] increasingly important and pretty neces-

sary to root myself in my own traditions rather than taking from other people’s [traditions] even if other people’s traditions have been offered to me as a pathway to healing. To know that the answers I am seeking lie in Jewish texts is really exciting and I know very little about the Jewish relationship to land and agriculture, so I am here to learn about those things.

This demonstrates the creative capacity of gatherings like this not only to attract people of Jewish identity but to help attendees learn from ancestral knowledge and have the opportunity to make those practices relevant in their farming and community life.

Ethnographic data also gave insight into tensions in the movement that stem from identity and inclusion. Quotes from two interviewees illustrate varied political reflections on the name “Jewish Farmer Network”:

I hope that we can also be really careful about our politics . . . calling ourselves a *Jewish Farmer Network* runs the risk of replicating and mirroring the way that Jewish farming has been used as a tool of displacement in Palestine.

What I would like it to be, as the *name* implies, an opportunity to network, to create the contacts and continue doing farm work minus the layers of ideology, social justice, et cetera.

These two perspectives potentially present clashing views, as the first participant expressed the politicization of the name, while the second participant is concerned with keeping the name depoliticized to remain as inclusive as possible. This section briefly demonstrates the effectiveness of short interviews at conferences. Most relevant is how they helped identify tensions, which presents opportunities for JFN to open up dialogue, given that these tensions can work to build movements rather than limit them at an early organizing stage.

### *Participatory Workshop Findings*

At the end of the conference, we facilitated a closing participatory workshop to capture the emerging ideas and conversations from the conference. Participants responded to eight questions on poster papers dispersed around the room (Figure 3 and Table 2). After answers were filled out, we asked attendees to share, which prompted responses such as:

Talking about the deep pain and grief of being in relation to land . . . and thinking about the sorrow that has kind of soaked that land and the literal blood that has soaked that land. . . . The space was held for those conversations with so much compassion. There was so much deep listening, and I think that paired with so much joy and playfulness allowed for us to feel . . . a real vibrational quality to this experience. [The conference] didn't just feel intellectual, [the conference] was felt. I think that is also stemming from spirituality being centered here, and the frameworks around spirituality, almost coming second. There was this element of like the true divine spirit being here, so that

**Figure 3. Introducing the Participatory Workshop with Poster Paper on the Walls**



Photo by Neta Shwartz.

helped [the conference] not only to be informational, but really transformational.

This testimony and others, shared publicly, is indicative of the emotional and spiritual vulnerability that many participants brought to the conference and the network.

The second part of the session grouped people into small working groups to collectively brainstorm future programs within JFN, responding directly to conference goal 3. Fourteen groups were established collectively: the research team presented 10 themes related to conference topics, and individual participants contributed four more when asked to add any themes that they thought were missing from the list. We guided participants through a brainstorming process in small groups, asking them to imagine future programs, projects, goals, and outcomes (Figure 4). Groups described the minimum and maximum contributions or resources they would need from JFN to bring their ideas to fruition. Groups were prompted to reflect on and compare their ideas with those of other groups, especially those that pertained to the creation of new JFN programming, what should be prioritized, and who their ideas can serve. For each of the 14 groups, we summarize the findings from this participatory analysis below by grouping them into three programmatic agendas useful for both movement-building and research agendas: social

**Table 2. Reflection Questions and Example Responses, Featuring Responses that Were Either Repeated or Reflect Themes in the Rest of the Data**

Reflection Question	Example Themes and Responses
What did you bring to this JFN community?	<ul style="list-style-type: none"> <li>• Business planning: “Willingness to talk about money transparently and share the specifics starting up a new farm business”</li> <li>• Technical farming knowledge: “Vegetables and farm planning”; “Science background”</li> <li>• Community skills: “Heart connection, awareness of needs, care for class and inclusiveness”; “Energy and time and desire for change”</li> </ul>
What did you learn or gain this weekend?	<ul style="list-style-type: none"> <li>• (Jewish) Farming knowledge: “Seed saving”; “<i>Shmita</i>”</li> <li>• Greater sense of Community and Connection: “Friendship and support”</li> </ul>
How will you apply something that you learned here at home?	<ul style="list-style-type: none"> <li>• Apply/Learn Jewish Agricultural Knowledge: “Applying <i>shmita</i> concepts to my business relationships”</li> <li>• Staying Connected: “Spreading the word so other lone, Jewish farmers know they’ve got a crew 2 back them”</li> </ul>
What was challenging for you or missing from this gathering?	<ul style="list-style-type: none"> <li>• Missing Diversity: “It would be cool to be able to host some people from indigenous and POC organizations speaking on/informing our conversations on diaspora, solidarity, land justice, etc.”</li> </ul>
Where/how do you fit into the JFN movement?	<ul style="list-style-type: none"> <li>• Growing into my farmer and Jewish identities: “I am just starting my farming life, and through this conference have integrated that with my Jewishness. I feel I fit as a community member, representing Colorado and community-based/driven farming.”</li> </ul>
How do you imagine staying involved in JFN?	<ul style="list-style-type: none"> <li>• Regionalization: “Regional chapters of JFN for local connection and meetups”</li> <li>• Online meetings: “Zoom-based learning sessions”; “skill sharing”; “source unpacking” [learning from traditional Jewish texts on agriculture]</li> </ul>
What support or resources from JFN would be meaningful to you?	<ul style="list-style-type: none"> <li>• Financial Support: “Collective purchasing”; “Posting of grants”</li> <li>• Learning: “Zoom classes throughout the year to continue learning”</li> <li>• Farmer Connection: “Facilitation connections between farm/farmers/aspiring farmers”</li> </ul>
Without logistical, financial or geographic limitations, what are your dreams for Jewish farmers?	<ul style="list-style-type: none"> <li>• Building solidarity across difference: “<i>Shmita</i> as a catalyst for movement organizing and solidarity”</li> <li>• Regional/Chapter building: “Reclaiming intimate connection with the land within Jewish communities”; “providing Jewish value-informed education/info regarding farming/ranching practice, food systems work, and sustainable community building”</li> </ul>

networking, education and training, and Jewish land ethics.<sup>7</sup>

There were eight working groups that focused on social networking projects (Table 3). This was highly representative of the conference’s buzzword, “community,” which was echoed through speeches, presentations, dining hall conversation, interviews, reflections, and songs (see Figure 5). Since its inception, JFN has focused on inclusivity across a spectrum of “Jewish” and “farmer” identities, and the conference reinforced the importance of this priority, especially the importance for building community to relieve the frequent invisibility of

being a Jewish farmer. However, this session created an opportunity to imagine more specific affinity groups within the network around location, sub-identity groups, and communities of practice. Regional listservs, gatherings and learning for Jews in the Northeastern U.S., Southeastern U.S., and in Israel were clear asks from participants. The Queer Jews brainstorming group specifically asked for more programming space or a panel at the next conference.

There were three groups dedicated to education and training projects, in which participants focused both on Jewish agricultural wisdom and

<sup>7</sup> It is important to note that we name thematic categories to draw out general themes, and that most groups blur the boundaries between two or more categories. The intersectional identities of each group reflect overlapping agendas and possibilities for collective movement building. For example, the Queer Jews group highlighted the members’ need for social networking within their own group, but also centralized their interests in queer education and land ethics.



more technical aspects of farming (Table 4). Participants imagined that JFN could provide support through organizing resources and leading learning initiatives. On Jewish agricultural wisdom, this includes curating curriculum and events specifically oriented toward connection to land and nature, along with ancestral time. Moreover, groups imagined a Jewish seed library and having access to agriculture-related Torah learning. They also want to have holiday retreats, apprenticeships on each other's farms, and skill shares. On the technical side, participants need business planning and start-up support, especially for for-profit farms, for which JFN could provide a job board and land board. JFN could also assist in marketing, networking with investors, collective grant-writing opportunities (to eliminate individual competition), and creating financial transparency among peers (Figure 6). Participants envisioned a potential Jewish farm incubator space with low-cost leasing for Jewish farm start-ups and the creation of a JFN grant program for for-profit farms.

Finally, there were three groups focused on Jewish land ethics, which included seed keeping, *shmita* (the Jewish agricultural law mandating eco-

**Figure 4. A Working Group in Discussion**



Photo by Carl Mink/Millburn Camera ASAP Photo.

logical and economic remission that includes allowing fields to lie fallow one year out of every seven), and land justice (Table 5). The Jewish Seed Keeping group expressed concerns about the disappearance and lack of stewardship of “*our* seeds.” This group wants to connect seed-saving practice to Jewish tradition through storytelling. Moreover, they asked questions on what Jewish seeds are and what the history of seeds is in the Jewish community. They are interested in identifying new Jewish seeds and the future of Jewish seeds. The *Shmita* Possibilities group worked on

**Table 3. Social Networking Groups**

Group Name	Group's Asks for Jewish Farmers Network (JFN)
<i>Jews in the Southeast</i>	Requested a listserv and as much as their own conference.
<i>Jews Farming in Israel</i>	Requested JFN representation in Israel, creating a relationship with farmers in the USA, and a social media account.
<i>Jews in the Northeast</i>	Requested resources on Jewish texts, network regional coordination, and as much as funding and land.
<i>Social Alchemy Pods</i>	Requested that JFN identify “catalysts” and to work with partner organization Regenerate Change to convene regular discussion meetings.
<i>Researching JFN Experiences</i>	Requested that JFN share resources and awareness of the group and as much as financial support for research.
<i>Queer Jews</i>	Requested that JFN promote and provide financial and organizational support for a queer and Jewish-specific gathering.
<i>Jews of Color</i>	Did not generate an ask for JFN during the session.
<i>New to JFN/Exploring</i>	Requested web services and regional-based coordinators for JFN.

generating a vision for further work on *shmita* from the work done at the conference, which featured four simultaneous sessions on *shmita* learning from different teachers. The group asked that “JFN is

responsible for providing [sbmita] programming that is practical and tangible, not just fantastical,” and suggested that “programming around sbmita should be about celebrating and adapting its suc-

**Figure 5. Why Are You Here? Responses at the Conference in the Beginning Session**



Image generated by word cloud software during the conference.

### Table 4. Education and Training Groups

Group Name	Group's Asks for Jewish Farmers Network (JFN)
<i>Jewish Agriculture Education</i>	Requested a listserv, forum, or resource database so that working groups can develop more ideas, along with a more major ask of providing or supporting an apprenticeship program.
<i>Farm Business Planning</i>	Requested more sessions on financial transparency of working farms and that JFN speak with major foundations to get us access to more funding opportunities.
<i>Starting a Farm or Project</i>	Requested a JFN job board and land board with more paid and production-based jobs, along with a more major ask of creating Jewish grants for non-501(c)(3) farms and an initiative for Jewish communities or landowners to evaluate land resources by connecting them with farmers.

### Table 5. Jewish Land Ethics Groups

Group Name	Group's Asks Jewish Farmers Network (JFN)
Jewish Seed Keeping	Requested to build a Jewish Seed Breeders group and a Jewish Seed Library, along with support for training, programs, and online organizational support.
<i>Shmita</i> Possibilities	Requested that JFN provide programming on [ <i>shmita</i> ] that is tangible not just fantastical, as programming around <i>shmita</i> should be about celebrating and adapting its successes, but also learning from its flaws.
Land Justice in Judaism	Requested to make programs for community members to engage in discussion on this topic.

cesses, but also learning from its flaws.” The group also noted that Cultivating Culture’s embrace of community *Shabbat* observance is a catalyst to integrating *shmita* principles into community practice. The Land Justice in Judaism group engaged in ethical and solidarity-based discussions on the connection between U.S. land and Israel-Palestine land, exploring Jews’ unique position at the intersection of “colonized” and “colonizer,” and engaging with histories of displacement. People and programming at the conference embodied radical vulnerability around identity expression, and many participants are ready to expand the radical organizing in the network.

Overall, these working groups represent the diversity of interests, engagements, and directions of farmers who attended Cultivating Culture, laying out future possibilities for programs for JFN. While these groups were temporary and plans incomplete, this brief activity provided a synthesis of themes addressed at the gathering and motivated some participants to continue working on these topics post-conference. In the next section, we reflect on some initial and ongoing outcomes of the PAR process that are related to this session.

### *Initial Outcomes of the PAR Process*

Our year of research collaboration produced several outcomes that go beyond any specific method and are situated in the overarching PAR approach. After the conference, analysis and action was two-fold. First, the researchers and JFN organizers processed data and conducted iterative participatory analysis to write an internal report for JFN’s board, funders, and future grant-writers. This report supports conference goal 4 of “proving the need and viability of JFN to funders in order to build a more just and regenerative food system.” The JFN organizers were able to respond to the analysis of the conference, reflecting on where there were successes and challenges in terms of inclusion in a newly formed community of Jewish farmers. Together, the research team made notes about

changes that could be made to the next in-person conference gathering in 2022.

Second, the ideas from the participatory workshop have guided JFN’s 2020–2021 programming—namely in virtual, COVID-19-era—form.

Directly following the conference, participants from the workshop self-organized an online Queer Jewish Farmer affinity group. This group held a panel called “TransPlanted—A Panel of Trans Jewish Farmers” at JFN’s 2021 virtual conference. This materialized out of a specific ask from our participatory workshop at the 2020 conference and brings the need to center gender nonconforming farmers into action. Additionally, in June 2020, students and other academics from the conference founded a monthly JFN Researchers group, which shares resources and knowledge on a range of studies directly related to or adjacent to JFN.

The interest in seed-keeping and exploring Jewish seed traditions was strong at the conference, and has resulted in a new JFN project: the Jewish Seed Project.<sup>8</sup> JFN is sharing 18 varieties of *Cucumis melo*, a hairy melon akin to the cucumber known as *qishu’im* in the Torah, with community members interested in cultivating seed and sharing photos, taste tests, and stories about the traditional crop.

Similarly, the conference revealed the community’s strong interest in exploring Jewish land ethics and solidarity with Indigenous Peoples. In the wake of the COVID-19 pandemic, JFN became the new host of a Jews and Land Study Group,<sup>9</sup> originally developed by founders and former staff of the now dormant Jewish Farm School<sup>10</sup> (2005–2019) in West Philadelphia, Pennsylvania. The curriculum originated from conversations with Philadelphia-based Sankofa Community Farm<sup>11</sup> Manager and Educator Chris Bolden Newsome, about the necessity of knowing one’s own stories in order to effectively partner in the work of liberation. Since May 2020, 14 study groups have engaged more than 120 JFN participants on topics of Jewish homeland, forced exile, diaspora, connection to

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<sup>8</sup> For more information: <https://www.jewishfarmernetwork.org/jewishseeds>

<sup>9</sup> For more information: <https://www.jewishfarmernetwork.org/jews-land>

<sup>10</sup> For more information: <https://www.jewishfarmschool.org/>

<sup>11</sup> For more information: <https://www.bartramsgarden.org/explore-bartrams/the-farm/>



land, and place-based farming. Participants collectively wrestle with both the histories of Jewish oppression and those of Jewish complicity in the oppression of others, including Jewish participation in the colonization of Native American lands and slavery. In all of these groups, participants from the conference and the JFN community were given the space to be leaders and take action on the issues that are important to them.

While the research team did not organize a participatory session or ethnographic work for JFN's 2021 abbreviated virtual conference, the themes from our 2020 work were intentionally and prominently featured in the 2021 conference programming. It is clear that ethnographic elements pulled out a diverse range of voices, some underrepresented in other Jewish or agricultural spaces. Our integration of these tensions and priorities during an initial PAR phase and into a future cycle of PAR is a framework for the continued inclusion of various perspectives, as well as a guide for future research questions.

### **Discussion: Framing Our Scholar Activism with PAR**

*Where scholarship and activism overlap is in the area of how to make decisions about what comes next.*

—R. W. Gilmore (2007, p. 27)

We frame our research, combining PAR and event ethnography in collaboration with JFN, as scholar-activism, discussed here through our evolving scholar-activist praxis and how it can be improved. Central to scholar-activism is the ethical practice of *resourcing* and the triangulation of research questions in the coproduction of knowledge (Derickson & Routledge, 2015). We draw on radical food geography praxis, which emphasizes action through academic and social movement collaborations in the food justice sphere (Hammelman et al., 2020). In these collaborations, we emphasize our positionality and social relations within JFN's growing movement. We leverage these to challenge knowledge hierarchies both inside and outside of academia.

For Derickson and Routledge (2015), resourcing includes channeling resources from academics

to collaborators and answering questions that non-academic collaborators want to know. We began this collaboration by asking ourselves and our community partners how we could best serve them and the organization through our unique positionality as researcher-participants. This open approach is important for thinking outside of universalized ideas of “giving back,” which can reproduce the power relations and harm that researchers are wishing to stop (Hammett et al., 2019; Ybarra, 2014). JFN needed help evaluating the conference and writing rigorous reports for funders. We helped design the evaluative survey questions and took on the detailed work of formatting survey documents and software. Post-conference, we worked with JFN organizers to analyze conference results for a donor report. This included making tables and charts (some of which appear in this paper) and compiling both summaries and analyses of attendees' experiences. This work represents a significant amount of would-be staff labor, to which we were able to contribute our skills in research design, note-taking, interviewing, and writing. This allowed us to make the “products” of our research process relevant to JFN's goals of progressive social and ecological change (Staeheli & Mitchell, 2005). We triangulated (1) JFN's needs (conference evaluation and gathering ideas from a broad group of participants) with (2) a “public” interest on the part of conference participants to engage in the formation of the movement and (3) our methodological and theoretical interests on using PAR and ethnography to further collective movement organizing among farmers.

As for the effects of our findings on the movement, our project helped illuminate and generate vocabulary for themes that JFN organizers were already engaging with implicitly: the politics of identity in movement building, politicization and depoliticization among Jewish farmers, and the politics of Jewish agroecological knowledge production and exchange. Scholar-activist outcomes need not necessarily be “good” for the movement, but can challenge the movement in a generative way, for “where scholarship and activism overlap is in the area of how to make decisions about what comes next” (Gilmore, 2007, p. 27). Our open-ended approach to helping JFN define its future

directions not only illuminated tensions within JFN, which organizers seek to hold rather than solve, but also outlined some concrete guides for action, which were generated by the participants themselves.

Our positionality within this movement is crucial for bridging multiple scales and spaces of knowledge coproduction, as both scholars of and activists in food systems (Reynolds et al., 2020). The co-production of knowledge between JFN organizers, conference participants, and ourselves contributed to experiential learning at the individual, organizational, and academic scales for over 90 people. We are both former nonprofit staff and participants of a professional development program in which we were peers of the JFN cofounders. Between the two of us, we have a decade of experience in the Jewish farming and education world and have built relationships with land and people at Jewish farming sites across North America. Within the Jewish farming movement, we are embedded in a web of relationships, the type of personal and activist relationships that demand a high level of accountability to a community or other group of individuals (Pulido, 2008). While recognizing the validity of PAR and scholar-activist research in multiple forms, we highlight the importance of using our pre-academic relationships and careers to further scholar-activist work. We echo the emphasis that other geographers place on making scholarship more socially relevant through scholar-activism (Croog et al., 2018), and we urge young scholars like ourselves, especially graduate students, to leverage these personal histories to implement relational and participatory methods as scholar-activists.

Given these relations, we cannot be merely researchers who dropped into the conference; we are researcher-participants who are a part of a community of struggle (Pulido, 2008). This struggle is an outward one of recognition and the right to exist at various crossroads of intersectional identities (including “Jewish,” “farmer,” and “Jewish farmer”), as well as an internal struggle within the network to define boundaries and inclusivity. The blurry line between “scholar” and “activist” or between “researcher” and “participant” attempts to delineate the multiple interpretations of the “field”

(Sharpe & Dowler, 2011). For example, one of us (the first author) was a presenter at the conference, independent of the participatory workshop, and the other (second author) was part of an volunteer conference advisory team that guided logistics. We argue that our toeing of these lines, coupled with our social relations, is precisely what gives us access to our “field”: the emerging 21<sup>st</sup> century Jewish farmer movement. Our “field” exists in bounded time and space during JFN’s four-day Cultivating Culture conference, as well as in virtual space before and after the conference.

We strive to challenge knowledge and power hierarchies by collectivizing the movement-building process within the Jewish farming field. Our efforts are simultaneously oriented toward scholarship. We are part of a long lineage of PAR practitioners and scholar activists. If an activist is “one who has a record of power or policy change” (Kendi, 2019, p. 201), we see our work as a building block in the cadre of scholar-activist literature that challenges positivist and extractive academia from the inside. Our work adds to the slow changing of research norms, and our responsibility is to continue reflecting on and editing our approach. In this practice, we see synergies with the Agroecology Research-Action Collective (ARC), a North America-based group of engaged scholars working on justice and sovereignty in food systems. We have embodied their principles of collaborative research development via ongoing collaboration, resourcing by providing valuable work, and dialogical interpretation to reach shared analysis (ARC, n.d., para. 3-6; Montenegro de Wit et al., 2021). We see ARC’s principles on working with institutions as a salient guide for future work.

### **Characterizing Event Ethnography as a Part of an Initial PAR Cycle**

We see our PAR work as cyclical and our relations as long-standing, so we take several lessons into the next iteration of research. JFN’s need for evaluative surveys became clear (Nelson & Landman, 2020) after the initial research design and during the collaborative designing of our participatory workshop. The surveys addressed demographics of attendees and conference goals, but lacked direct questions about identity, attitudes, and future direc-

tions. Thus, there were shortcomings in how extensive the surveys were in relation to our research questions. While survey data were used to describe who came to the conference and to assess the conference's goals, we identified missed opportunities in data collection via surveys in 2020. For the virtual 2021 conference, we supported the redesign of registration surveys and matched them with post-conference surveys to determine who was served by the conference and whether certain groups were not served. Had we noticed JFN's need for surveys earlier, we could have incorporated them more intentionally into our 2020 data collection.

The interviews provided rich content that spoke to scholarship on movement building and agroecological knowledge politics. We recognize that the results presented a tiny fraction of the rich dialogue that was shared, mostly assessing attendees' perceptions at the outset of the conference. In the future, we hope to reserve more capacity and time to conduct interviews strategically between and after sessions on the last day. Conducting follow-up interviews with interview participants or other willing attendees was planned but was not possible due to respect for how much the global COVID-19 pandemic (which was declared shortly after the conference) affected our partners, participants, and us. Had it been appropriate, follow-up interviews with key actors, such as presenters at the conference, could have provided reflections on the politics of agroecological knowledge production. Moreover, incorporating interviews with board members and funders could have provided more analysis of movement and institutional politics and capacity.

We gained embodied lessons on facilitation during our participatory workshop, "Harvesting a Participatory Movement." The session was a collaborative idea generator and constituted part of the participatory analysis, as conference attendees not only shared their own ideas, but reacted to and synthesized those of others in small groups and during the full-group share-back. We preselected group topics with the JFN organizers (e.g., Jews in the Southeast, Queer Jews, etc.), added groups

throughout the conference, and asked for real-time input from participants by asking them to add themes. In a future iteration, we would make this even more participatory by recruiting conference attendees to be facilitators for each theme, putting facilitation trust in participants and giving them more power to mold their group's foci. This would allow for a more egalitarian distribution of power between researchers and participants, especially for marginalized voices, such as farmers of color and Queer farmers, to more directly represent themselves.

In future PAR cycles, this research will potentially expand the formal "action" phase. In this article, we frame initial outcomes, such as the formation of the Queer Jewish Farmer group, creation of the JFN Research group, and strengthened emphasis on seed-keeping, as actions that came out of research held at the conference. While these actions were initiated and supported to varying degrees by the research team, all of these outcomes came about rather "organically" without any major funding or institutional mechanism supporting the process. Only one member of the research team, namely JFN's part-time executive director, is not doing this work on voluntary basis.<sup>12</sup> In many ways, this demonstrates the value of the conference and participatory workshop; however, the reliance on self-organization might not be sustainable in the long term without dedicated professional support. Furthermore, many of the "asks" from the participatory section directly invoked financial support (Table 2; Table 4). We expect that this initial PAR cycle builds legitimacy for this work and is, therefore, able to expand to include more delineated and "traditional" PAR actions.

In sum, using event ethnography methods allowed us to address some of the limitations of PAR in a movement that is just forming. During the conference, our ethnographic work entailed listening to individual and diverse voices and situating them within a collective web. This revealed tensions in the community about how to approach (de)politicization and agroecological knowledge production. These insights not only helped us interpret survey and workshop data, but also

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<sup>12</sup> As of June 2021, JFN is in the process of hiring two part-time workers, including a development director and network coordinator.

informed the questions we were asking in real time. Blending PAR and event ethnography at this early stage, during a field-configuring event, allows us to understand movement building not only as it is happening, but also as it is initiated.

### Future Directions

This research demonstrates how event ethnography with a PAR research design can contribute to the formation of a social movement and collaboratively define future research agendas. We identify four areas of potential inquiry: (1) agroecological knowledge production and exchange among Jewish farmers; (2) how social movements build solidarity and maintain inclusivity; (3) Jewish agrarianisms; and (4) scholar-activism's potential for building equitable and just social movements. While this list is neither complete nor exhaustive, it gives some ideas of how this research can support a radical food geography praxis.

First, this research engages the production of agroecological knowledge in a context that bridges Jewish agrarian spaces with secular agroecological spaces. JFN provides space for knowledge exchange that is found in neither secular or non-Jewish agricultural gatherings nor in nonfarming-focused Jewish spaces. For example, engagement with *shmita* presents the opportunity to radically change perspectives, knowledge, and practices using ancestral understandings of time and place that differ vastly from Western worldviews. Additionally, Jewish seed-keepers maintain seed as a dual act of ancestral connection and sovereignty within varying social and political contexts. Other Jewish environmental values about waste reduction (*bal tashchit*), humane kosher animal slaughter (*shechita*), and fruit tree care are being taken up by Jewish farmers within JFN. Evident in our participatory workshop collective analysis, Jewish farmers are grappling with implementing ancestral knowledge in modern contexts in porous Jewish agrarian spaces, the specifics and dynamics of which remain understudied.

Second, this research explores questions concerning politics of identity and inclusion, highlighting JFN's challenge to maintain inclusivity while building solidarity. Some would prefer to depoliticize the Jewish Farming movement, which may be

inclusive to people from more denominations but would effectively mute important conversations on race and justice. Others push strongly for a politicized movement that builds solidarity with indigenous, environmental, and social justice organizations, seeing this type of solidarity as integral to Jewish agrarian ways of being. This tension notably includes polarizing views pertaining to Israel-Palestine and Zionism, which in mainstream Jewish institutions are often totally avoided or excused. JFN seeks to hold these tensions while inviting all participants into dialogue, not to solve them. With regards to these issues, we ask how Jewish land ethics can be defined and brought into praxis in this movement of Jewish farmers.

Third, our research with JFN expands on Jewish agrarianism work that centers Jewish Community Farming (JCF) organizations (e.g., LeVasseur, 2017), by focusing on wider Jewish intersectional identities along with knowledge exchange between farmers who are unaffiliated with JCF organizations. Part of this work includes JFN's engagement with secular organizations, such as the National Young Farmers Coalition, Pennsylvania Sustainable Agriculture Association, and others. This engagement facilitates the networking with farmers "who happen to be Jewish" along with integrating and remaking conversations happening in the broader sustainable agriculture community through Jewish lenses. By focusing inwardly on shared ancestral knowledge and identity, JFN interrupts secular, often "white," appropriation of Indigenous and other peoples' agricultural and social technology by reconnecting people to their own knowledge traditions. This could be understood as an outward contribution that extends beyond the Jewish community, and also merits further study and theorization.

Fourth, this project illustrates the potential of scholar-activist work to enact change within both community organizations and academia. We notice the small ways in which our blending of scholarship and activism, undergirded by our use of event ethnography with a PAR approach, has contributed to collective movement-building. We observe this in the breadth of voices demonstrated in our findings. When those voices are included via PAR approaches, the movement can be more equitable

and serve more people. We have discussed the effectiveness and shortcomings of scholar-activism in this context and believe there is ever more room for further contributions.

In conclusion, we demonstrate here how a PAR approach combined with event ethnography at conferences is a mutually beneficial venue for meaningful scholarly engagement with social movement formation. Researchers, especially aspiring academics, should be encouraged to continue previous activist engagement, learning from

tacit knowledge and activist work while offering methods and theory from critical scholarship. Reciprocally, movement-builders should welcome and encourage scholarship, including PAR-designed research, in emerging social networks, especially among people who already have social commitments within the community. Together, this strategy will foster change from a legacy of extractive research toward a more inclusive scholar-activist standard of social scholarship and food system change.

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# Rethinking farmer knowledge from soil to plate through narrative inquiry: An agroecological food systems perspective

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## Abstract

This paper illustrates how farmer knowledge is generatively constructed and framed within an agroecological context to address the complexities of our food system more fully. For some, farmer knowledge is a hidden asset below the surface that acts as a reserve for sustaining and fortifying food

system possibilities. We interviewed 12 self-identified smallholder farmers in Virginia using narrative inquiry as a dynamic methodology to explore the rhizomatic quality and mycorrhizal nature of smallholder farmers' knowledge and experiences of soil, conservation, and place. The narrative inquiry method offered a participatory research approach to analyze how farmers perform their work in ways that extend across and are entangled with other domains of the food system that reflect agroecological values. Five primary themes were identified from the narrative inquiry data analysis by drawing upon the whole measures of community food systems as a values-based framework. Our findings illustrate how farmer praxis is reflective of and influenced by the

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ecological and sociopolitical ethos of land, food, health, and liberation. For scholar-practitioners, this research emphasizes the current claim for reevaluating and reconceptualizing research and outreach responses to mounting food system crises. The construction and expansion of farmer knowledge are not linear but rhizomatic and mycorrhizal in quality; therefore, scholar-practitioner responses to understanding and engaging with farmer knowledge systems should be amenable to a diversity of culturally dynamic systems of knowing that embody socio-eco relations and networks. Like others, we argue that an over-emphasis on essentialist “best practices” and technocratic problem-solving does not adequately help us see these generative possibilities from soil to plate. Thus, we recommend that food system practitioners and researchers emphasize engaged listening, storytelling, and generative—not extractive—approaches as an epistemological frame for expanding our understanding of agroecology and food systems change.

### **Keywords**

Agroecology, Epistemology, Farmer Knowledge, Food Systems, Narrative Inquiry, Rhizomatic, Mycorrhizal, Systems Thinking

### **Introduction and Literature Review**

Farmers play a vital role as educators and movement makers within our food and farming systems. Over the last several decades, smallholder farmer knowledge has been increasingly valued in grassroots, nonprofit, governmental, and academic circles for the creation and leadership of social movement networking, policy recommendations, and food system transformation strategies for sustainability and food justice (Alkon & Agyeman, 2011; Brook & McLachlan, 2008; Carr & Wilkinson, 2005; DuPuis et al., 2011; Gliessman, 2018; Hassanein, 1999; Laforge & Levkoe, 2018; Montenegro de Wit & Iles, 2016; Neef & Neubert, 2011; Pretty, 2002). Agroecological principles and practices rooted in indigenous knowledge networks have emerged in the Global South and North to address the social, economic, environmental, and political challenges of local agricultural and food systems (Altieri, 2000; Holt-Giménez, 2006;

Méndez et al., 2012; Montenegro de Wit, 2021). Montenegro de Wit and Iles (2016) encourage extending agroecology’s social, political, cultural, environmental, and ethical influence to impact science and fortify legitimacy. Understanding how farmers’ knowledge is constructed and framed as agroecological knowledge in a social context is critical in better addressing the diversity, complexities, and vulnerabilities of our agroecosystems.

Zimdahl (2006) argues that farmers are foundational resources of knowledge in agriculture, just as the soil is a quintessential resource for food and fiber production. However, how farmer knowledge is constructed as agroecological knowledge can be undervalued as a resource, much like the soil beneath us, and requires deeper investigation. Gliessman (2018) framed farmer knowledge as inherently co-creative and transdisciplinary; however, this framing does not easily align with the technical-rational discourses and practices in agricultural sciences. Pimbert (2018) posits that more research and careful critiques of how knowledge and epistemologies are constructed, contested, and deconstructed are needed.

Food system efforts are continually evolving; therefore, farmers and practitioners have to constantly adapt to match the idiosyncratic nature of their farms (Lyon et al., 2011). By engaging in a critical reflection process, farmers as practitioners and observers work on challenging the dominant discourses that maintain our present hegemonic systems (Gliessman, 2018; Stepney, 2006) and integrate theoretical and empirical knowledge to tackle the myriad of complex problems that arise in practice (Montenegro de Wit, 2021; Thompson & Pascal, 2012).

Critical reflection is also relevant to researchers, educators, and technical service providers. Without critical reflection, technical-oriented “best management practice” approaches in food systems and natural resource conservation work are valorized, and systemic change is viewed as logical, linear, and sequential. The privileging of essentialist and technical-rational discourses and practices in agricultural science reifies a strong tendency to flatten and distill complex systems processes into a suite of best management practices (BMPs) and simple equations (Arnold & Wade, 2017; Church et

al., 2020; Laws, 2017). Understanding best management practices and how these practices fit in individual farm operations can increase access to federal and state cost-share programs and technical services and address specific conservation objectives. However, an overemphasis on technocratic problem solving apart from an overall systems approach does not adequately bring to light the interdependence and depth of socio-eco relations within food and agriculture (Galt, 2016; Pimbert, 2017; Pimbert, 2018). Exclusively focusing on BMPs and implementation of practices for conservation separate from a broader food and farm context, for example, can limit peer-to-peer education learning, barely scratch the surface of farmers' complex knowledge base, and overlook the deeply rooted hidden assets of resiliency, sustainability, and social activism that are embedded in farmer's everyday lives.

Farmers' experiences, context, and values inform who they are as knowledge makers, systems thinkers, and practitioners (Pimbert, 2018; Schon, 1983). We argue in this paper that an overemphasis on essentialist and technocratic problem solving does not adequately recognize and value farmers' social-ecological knowledge of the often-hidden soil-to-plate complexities of their farms and broader food systems. Additionally, the pervasive neoliberal framing within government and the food system inherently weakens research, limits educators and conservationists' ability to build durable work relationships with farmers, minimizes opportunities for listening, and constrains food and farm system possibilities. Hence, we argue that storytelling and narrative inquiry demonstrate how small-holder farmer knowledge is social-ecological in context with non-linear rhizomatic and mycorrhizal qualities (Deleuze & Guattari, 1987; Tedersoo et al., 2020).

### ***Farmer Knowledge as Rhizomatic and Mycorrhizal***

This research was initiated with Virginia farmers to better understand their experiences, contexts, and relationships to soil, conservation, and place and how agroecological principles and practices intersect with individual experiences, contexts, and values. Farmers play a crucial role in cultivating and

nurturing soil and the ecological relationships within a farming system. We argue that our most paramount challenges (e.g., degradation and depletion of natural resources) cannot simply be "solved" by technical and rational "best practices" alone but must be addressed through culturally dynamic systems of knowing that embody socio-eco relations and networks that are generative and complementary with life-affirming possibilities.

As a life-affirming possibility, we use two agroecological terms common to plant and soil community dynamics: rhizome and mycorrhizae. These terms are used as a metaphoric shift for the nuanced complexity and depth of farmers' knowledge that may be hidden within food and farm discourses and require more than surface-level inquiry (Deleuze & Guattari, 1987; Niewolny & D'Adamo-Damery, 2016; Tedersoo et al., 2020). This metaphoric shift emphasizes that farmer knowledge is critical to human and systems ecology (Gliessman, 2017).

Rhizomes are underground plant stems that continually grow and explore the soil surface through lateral shoots and adventitious roots to bolster a plant's food reserve (Evert, 2006). Deleuze and Guattari (1987) described a rhizome as a metaphor to explain how knowledge can be generative and structurally significant—not linear and reductionist. Rhizome growth and expansion allow new assemblages and networked possibilities in unexpected relational ways and spaces (Deleuze & Guattari, 1987, p. 7).

The second term, mycorrhiza, describes the mutually beneficial relationship developed between a plant root and fungi in the soil. Mycorrhizal fungi are specialized and serve a mutually beneficial role in extending plant roots' reach and assimilative capacity to take in nutrients, water, and environmental information in exchange for carbon and sugars. Like farmers' social-ecological networks and associations, the plant root-fungus association is difficult to see without digging deeper, but the association is symbiotic and significant to structure and survival (Magdoff & van Es, 2018, p. 16; Sylvia, 2005).

Rhizomes and mycorrhizae function as socio-eco metaphors for farmer knowledge, an ecosystem of enmeshed relationships and exchanges

relevant to soil, food, health, and liberation. Comparably, farmers have abundant, complicated, and distributed roots with context, experiences, and assimilated values that may be hidden but embody who they are (Kirschenmann, 2010). From an agroecological perspective, relationships and exchanges have multiple functions and cannot simply be excavated and isolated from one another. Thus, rhizomes and mycorrhizae as agroecological metaphors help conceptualize the networks, exchanges, and associations critical to creating and constructing farmer knowledge and epistemological possibilities in the food system.

### Conceptual Framework

Interest in soil health education and implementation as an agroecological principle and practice has increased significantly in Virginia and across the world (Karlen & Rice, 2015; Lal, 2016; USDA NRCS, 2018). Soil health is foundational to proper life-giving ecosystem functions (Magdoff & Van Es, 2010). Soil health, because of its intersection with the chemical, physical, and biological properties of the soil ecosystem, served as a starting point for the study project. Our conversations with 12 Virginia farmers deepened our understanding of how farmers construct and contest knowledge based on personal experiences, seen and unseen influences, values, and their practices in the food system. Our conceptual framework emphasizes how farmer perspectives and conservation practices reflect and influence their broader ecological and socio-political ethos of land, food, health, and liberation (Pimbert, 2018).

We drew upon *Whole Measures for Community Food Systems* (Abi-Nadar et al., 2009) as a dialogical framework of farmer knowledge because it incorporates the value of sustainable farmland and natural resources and is intersectional, dynamic, and inclusive of other social and ecological values rather than focusing on specific principles and practices. Abi-Nadar et al. (2009) defined whole measures as healthy people, food security, sustainable farmland and natural resources, agricultural profitability, thriving economies, justice and fairness, safe and nutritious food and water, and viable communities. We used this whole measure framing as a compatible agroecological approach for culti-

vating sustainable, biodiverse farming systems and a basis to thematically code and analyze the intersectional nature of how farmers conceptualize the socio-eco relations of farming, sustainability, and soil health in their local communities.

Researchers and practitioners need to reconsider the notion of best research and management practice to account for and acknowledge nuance, complexity, and social-eco relationships. Listening and storytelling are research methods complementary for understanding knowledge formation that can add depth and texture to the analysis of agroecological systems and practices. Food systems practitioners and researchers should be encouraged to listen and engage in storytelling and narrative-based research to expand spaces for learning the socio-political aspects of agroecology and extending understanding of farmer knowledge.

### Applied Research Methods

#### *Narrative Inquiry*

Narrative inquiry (Clandinin, 2007; Clandinin & Connelly, 2000) as a dynamic methodology allowed us to explore the generative intersectional rhizomatic and mycorrhizal nature of smallholder farmers' knowledge and experiences in the creation of healthy soil and place. Richmond (2002) defined "narrative" to mean both a process and a product. This inquiry approach and definition of narrative involves treating stories as both a *process* of reflexivity through storytelling and the *products* of the storyteller's voice, activity, and performativity (Niewolny & D'Adamo-Damery, 2016). This inquiry approach acknowledges that people's everyday knowledge informs ecological philosophy and practice. Narrative inquiry allows the farmer an opportunity to craft their own stories through a series of "prompting" questions as a semi-structured conversation to emphasize and clarify personal meanings, worldviews, and histories (Ligrani & Niewolny, 2017; Lyon et al., 2011; Niewolny & D'Adamo-Damery, 2016).

Forester (1999) used narrative inquiry as a participatory research mechanism to analyze the way practitioners operate in their work lives as an illustration of power and knowledge. The inquiry approach was used in our study to simultaneously

reveal theory through farmers' direct experiences (Forester, 1999; Peters et al., 2004). Peters et al. (2004, p. 8) stated stories as narratives are "complex and nuanced," opening dialogue and space to enable readers to move beyond the broad generalizations of what "practitioners" do and reach a rich textured understanding that contains a combination of insight, ambivalence, frustration, and hope. Narratives draw specific attention to the values, strategies, hopes, and motivations farmers embody as an everyday lived experience.

Drawing upon Ligrani and Niewolny (2017), Niewolny and D'Adamo-Damery (2016), Lyon et al. (2011), and Peters et al. (2004), this research approach is about attending to the storyteller, appreciating the experience being shared, and not forcing an interpretive agenda, but allowing the story and narrative to unfold for the storyteller,

listener, and reader. We understand narratives as a form and space for performative learning and experimentation and exploring possibilities with one another (Law, 2008). For food systems stakeholders, we recommend narratives as a critical form for learning and deepening understanding.

### *Research Design and Data Collection*

We interviewed 12 self-identified smallholder farmers who live and farm in Virginia for a Soil, Conservation, and Place study project (Table 1). Project participants consented to share their identities and interview stories following an approved Institutional Review Board (IRB) research protocol. Participating farmers had diverse lived experiences and were located in Augusta, Charles City, Chesterfield, Dinwiddie, Grayson, Hanover, Louisa, and Rockingham counties, and the city of

**Table 1. Participating Farmers, Type of Production, and Resource Conservation Practices**

Farmer	Farm Name	Production Type	Soil and Water Conservation Practices
Janet Aardema	Broadfork Farm	Vegetables (certified naturally grown), naturally leavened hearth-baked bread	No-till/low-till, cover crops, pollinator habitats
Danny Boyer	Four Winds Farm	Beef, grass-fed and finished	Managed grazing, alternative water systems
Gerald Garber	Cave View Farms	Dairy cows, feed production	Rotational loafing lots, concrete stream walkways, stream fencing
Anne Geyer	AgriBerry Farm	Raspberries, blueberries, blackberries (Good Agricultural Practices [GAP] certified)	Cover cropping, perennial crop production
Amy Hicks	Amy's Organic Garden	Vegetables, cut flowers, and small fruit (certified organic)	Crop rotation, cover cropping, pollinator habitats
CJ Isbell	Keenbell Farm	Grass-fed beef, pasture-raised pork, free-range poultry, eggs, and specialty non-GMO grains	Managed grazing, no-till/low-till agriculture, cover cropping, crop rotation, stream exclusions
Jonathan McRay	Silver Run Forest Farm	Riparian nursery and folk school	Agroforestry/polyculture
Mike Phillips	Valley View Farms	Grass-fed and pastured beef and formally poultry	No-till, managed grazing, cover cropping systems
Robert H. Spiers	Spiers Farm, LLC	Corn, soybeans, grain, tobacco	Cover cropping, no-till/low-till
Renard Turner	Vanguard Ranch, Ltd.	All-natural, free-range meat goats, squab, and vegetables	Cover cropping, managed grazing
Ira Wallace	Southern Exposure Seed Exchange	Heirloom and open-pollinated vegetables, herbs, and flower seeds	Cover-cropping, no-till/low-till, crop diversification, organic certification
Philip Witmer	Grazeland Dairy, Inc.	Dairy cows, hay, small grain, corn, wheat, soybeans (certified organic)	Rotational grazing, cover cropping, no-till/low-till, crop rotation

Harrisonburg. The social backgrounds of participants ranged from emerging to vast farming experience and included various farming methods, systems, and paradigms. We used purposive sampling to obtain a cross-sectional representation of farmers within Virginia's agricultural community (Cresswell, 2008). The purposive sampling identified potential participants based on age, race, and gender; type of farm operation; geographic region; and recognition from peers, technical service providers (i.e., USDA-NRCS, Soil and Water Conservation Districts), or Extension educators for soil and natural resource conservation. A recruitment letter describing the project and its proposed objectives was shared with the research team and their network of agricultural contacts, associations, advisory boards, and technical service providers. The selected farm operations included but were not limited to: small dairies (<100 cows and <100 acres); small dairy/beef plus poultry operations; small (<25 acres) produce operations; grain producers; cotton/tobacco producers; and mixed animal/produce operations.

The 12 farmers were interviewed with semi-structured prompting questions to construct a reflective story (Ligrani & Niewolny, 2017; Lyon et al., 2011; Niewolny & D'Adamo-Damery, 2016; Peters et al., 2010). The conversations took place on the participant's farm at an agreed-upon, convenient setting. The participants were asked to commit to two farm visits of 2 to 2.5 hours to allow ample time to introduce and discuss the questions for a 60 to 90-minute semi-structured conversation (Niewolny & D'Adamo-Damery, 2016). A stipend was provided to acknowledge the participant's time commitment and schedule. Following Niewolny & D'Adamo-Damery's (2016) process and our university's Institutional Review Board (IRB) guidelines, each narrative collected during the first visit was consented to, audio-recorded, transcribed, re-transcribed with editing, and configured as a public "narrative" through a co-editing process with the farmers and interviewers. The final co-edited narrative of each participant ranged in length from nine to 12 pages. After the conversation, researchers were led on a farm tour to observe soil and water conservation practices that were particularly meaningful and relevant

to the farmer's story and could be highlighted in a follow-up two to three-minute video. The follow-up videos of each participating farmer interviewed for the Soil, Conservation, and Place project are hosted on the Center's website.

### **Data Analysis**

The narratives as data were analyzed to examine the deeper rhizomatic and mycorrhizal threads that link farmer perspectives and practices to broader food system domains. *Whole Measures for Community Food Systems (CFS): Values-Based Planning and Evaluation* (Abi-Nader et al., 2009) was used as a dialogical coding framework to better understand and assess these rhizomatic and mycorrhizal intersections and nodes (Saldana, 2016). In the data analysis process, we conducted two rounds of coding in Atlas.ti using the *Whole Measures for Community Food Systems* fields and practices as a central component of our codebook. Data analysis was based on the frequency and volume of occurrence of references to themes in the transcripts of the narratives (Niewolny & D'Adamo-Damery, 2016). The themes and sub-themes were specifically articulated and framed by the interviewees and their transcribed narratives. As highlighted in the results section below, this study enabled us to use the whole measures framework to see and understand farmer agroecological knowledge beyond best practices; thus, revealing the ways farmers leverage and extend their broader ecological and sociological ethos of land, natural resource stewardship, and community at an individual and collective level.

### **Results**

Analysis of the transcribed narratives highlighted the commonalities and complexities of the participating farmers and how farmers construct and contest agroecological knowledge across different social, political, and ecological domains of our food and farming systems. Five primary themes were identified from the narrative inquiry data analysis as intersecting with the values-based whole measures of community food systems (CFS). The primary themes that emerged included: (1) a pledge toward ecological health and intergenerational ethics for small farm viability; (2) the building of diverse and collaborative relationships, trust, and reciprocity

through farmer to farmer learning and/or community relations; (3) the desire to provide access to healthy, diversified, culturally appropriate foods; (4) the creation of equity and justice through cooperative and emancipatory farming models; and (5) the supporting of livelihoods and social well-being by resisting suburban development and an ethos of community care. Excerpts from the nine to 12-page narrative transcripts are highlighted below to showcase study participants' diverse and common perspectives and how their conservation stories are deeply intertwined with other food system values. In addition, farmer's soil and water conservation practices are listed in Table 1.

### *A pledge toward ecological health and intergenerational ethics for small farm viability*

Many study participants credited their long-term success to focusing on the whole measure of sustainable farmland and natural resources and building ecological health from the soil up. As CJ Isbell of Keenbell Farm emphasized, "We think we are cattle farmers, or grain farmers, [but] we're soil farmers." Similarly, cattle farmer Mike Phillips shared his understanding of a soil-first approach to farming by recalling conversations he has had with neighboring farmers:

Dirt is dead. Soil is living. And you got the same soil, but what's happenin' is you've mined it, and what you gotta do is be able to put back...I said, 'You gotta feed the below-ground, so you can feed the aboveground. If you don't keep the belowground fed, you're headin' down the wrong road.'

Janet Aardema credits her and her husband's long-term success in farming to their focus on building and conserving soil: "... we're half a soil company, and half a logistics company. ... That's what allows us to be rooted here in this community, and really, truly staying in business, carrying out the work of growing food for the community."

For many study participants, soil health is a priority linked to ecological and social sustainability. Danny Boyer described this clear connection in his interview:

I would like to leave a farm that's intact so that someone else can pick up and have the opportunity to produce a good, viable product, taking care of our natural resources along the way. . . . I have worked with the Virginia Beginning Farmers and Ranchers, and I mentor with several on a regular basis and encourage people, younger people, to get in farming as a livelihood. I think we'll, as a community and as a nation, we'll be better off to take care of the resources and our land and our water so that we can produce our food.

### *The building of diverse and collaborative relationships, trust, and reciprocity through farmer to farmer learning and/or community relations*

The whole measures coding framework revealed that building diverse and collaborative relationships, trust, and reciprocity through farmer to farmer learning opportunities and/or community relations intersect with all participants' narratives. The co-creative production and sharing of knowledge, and prioritizing human and social values are consonant with the whole measure of strong communities.

Study participants highlighted informal and formal farmer to farmer learning opportunities as beneficial for farm viability and essential for long-term conservation efforts. In the following excerpt, Phil Witmer described learning from other farmers domestically and internationally:

Every farm we visited is different than ours, but it has been very helpful for me to learn from other people's experiences [and] how they manage in their environment with their challenges. . . . Some production challenge comes up, and you think of how so-and-so was managing that issue. . . . I've always felt that it was really important to share what we're doing because I've benefited so much from what others have done.

Many study participants shared their experiences of participating in on-farm demonstrations of soil conservation practices. Robert Spiers

explained how the benefits of on-farm demonstrations could extend well beyond the farm itself:

We were approached by an Extension service to do a project for the Ag Expo concerning strip-tilling tobacco...The first year we did the experiment, we did four acres, and the next year we did 17 acres, and the year after that we went 100%...probably 80% of the tobacco in the county is done strip-till now, which would probably be in the order of eight or nine hundred acres that was done after we carried out the demonstration.

For Danny Boyer, a former employee of the USDA-Natural Resources Conservation Service (NRCS), long-term soil and water resource conservation requires farm demonstrations, education, application, and strong, trusting community relationships:

You're not gonna have an impact just passing laws, but if you do demonstrations and show people what can be done, and then you have education . . . and then start doing application. . . . That's where you really get to having water quality and sustainable farms. You do have to build relationships, people have to trust you, you have to do what you say you're gonna do. . . . You need to go back and follow up and help them grow and learn together as peers and colleagues.

CJ Isbell, who described himself as a soil farmer, discussed community relationships as the foundation for long-term farm viability:

It is not just a money transaction between the customer and us, it is developing that relationship because I really feel like for agriculture as a whole, that's one of the voids that's in the marketplace—that distance between the customer and the producer. The connection with the people who are buying our products, that's what creates the lasting relationships, lasting transactions, and sustainability. . . . It's a holistic approach that really makes a difference.

Other study participants expressed their commitments to future generations in different ways. For example, Anne Geyer created a young worker training program on AgriBerry Farm as a way to “pay it forward.” Anne received the benefits of having incredible mentors as a beginning farmer and wants to pass on her knowledge and experience to the next generation. Similarly, Mike Phillips, in partnership with a local career and technical education center, allowed his farm to be a learning laboratory and student-run farming operation. For Mike, true sustainability is not possible without giving to the next generation and enabling young people to build on current efforts:

I've had people tell me ‘you're crazy,’ to take a farm and say, ‘Okay, it's yours to work with.’ . . . I said, ‘If it's God's will, it's ok.’ You know, it's not me but a gift that has been given to me. When a gift is given, it needs to be given back. . . . And that's sustainability. Sustainability comes from the harmonious balance . . . no matter how high you go in life, degree-wise, you'll never get anywhere without a good mentor.

Ira Wallace is a co-owner and operator of the Southern Exposure Seed Exchange, a worker-owned cooperative offering approximately 700 varieties of vegetable, flower, herb, grain, and cover crop seeds in partnership with 70 other farms. Southern Exposure Seed Exchange is committed to implementing environmental conservation practices on its 72-acre farm through cover cropping, low-till, diversification, and organic certification, while also encouraging and supporting these practices on their partnered and contracted farms.

Beyond environmental conservation, Ira posits that Southern Exposure is here “because of community more than farming,” exemplified in their profit-sharing model, farmer support services, and community organizing and educational strategies. With values anchored in justice and fairness, Ira (who grew up during the civil rights movement) believes in the power of ethical food production. Ira shared: “I like to tell young people if they want to take a radical stand in the world become an ethical food producer.”



***The desire to provide access to healthy, diversified, and culturally appropriate foods***

Analysis of the narrative transcripts revealed that the desire to provide healthy food for all through their operation intersected with six of the 12 participating farms. These six farms were direct-to-consumer operations. The intersection demonstrates alignment with the agroecological principle of supporting culture and food traditions and ensuring all community members have access to healthy, diversified, and culturally appropriate foods. The examples below highlight various perspectives on how these farmers' ecological ethos is entwined with the whole measure of supporting healthy people.

For Amy Hicks, the drive to overcome the challenges of small-scale farming and care for natural resources is fueled by her strong desire to provide her community with healthy, organic food:

As far as values in our work, we're really keen on organic obviously. We're just very, very interested in producing good, clean, nutritious food for those in our community, and that's what keeps us going each and every day . . . is being at the market and seeing these customers we've had for close to 20 years . . . We think everybody should eat more vegetables, and if they can, they should definitely eat more organic vegetables.

Comparably, Renard Turner directly spoke to the relationship between human and environmental health. He shared his land stewardship and food access ethos with a particular focus on inclusivity across racial and class lines:

We're concerned with the systemic racism that we know exists and how that pans out across the country. These children are being raised on sub-standard food. They're being raised in environments that are unhealthy. . . . Our position in life is to leave this land in a better condition than how it was when we found it. . . . We would like the world to be a better place for everyone, and I think that one of the ways to do that is to have food equality and access to good food for everyone.

Jonathan McRay spoke to nurturing soil health, healthy people, and social justice. Drawing inspiration from his time at Soul Fire Farm, Jonathan reflected on soil conservation as a mechanism for fostering healthy people:

I hear a lot of white farmers talking about the soil for productivity and soil health, especially out of concern for climate change. I don't disagree with those at all, but at Soul Fire [Farm], with this focus on soil health as a Black-led farm resisting racism and injustice in the food system. One of their primary concerns for soil health is that for the food to be healthy and nutrient-dense, the soil has got to be healthy and full of the nutrients. . . . That felt like a deep ah-ha moment to me like, 'This is why we take care of soil.'

For Ira Wallace of Southern Exposure Seed Exchange, culturally appropriate foods have historical and emancipatory context. Southern Exposure curates heirloom variety seeds and has undertaken a new project to find information about foods and seeds from the African diaspora, a part of the American experience.

***The creation of equity and justice through cooperative and emancipatory farming models***

Three narratives specifically intersected with the theme of creating equity and justice through cooperative and emancipatory farming models. The intersection is based on the frequency that equity, just, cooperative, and emancipatory models were mentioned in the conversations and agroecologically enacted through these unique farming operations.

For both Jonathan McRay and Renard Turner, farming as a process and practice can be liberating and healing. Drawing on the natural processes of the forest, Jonathan believes that farming can be a source of holistic remediation and restorative justice to heal ecological and sociological aspects of our world:

For us, those roots grow out of agroforestry, to farm like the forest, watershed health to care for our home and our place, and restorative

justice. And through those, we're trying to farm like the forest [agroforestry, polyculture] and remediate or heal the toxins that pollute our souls in society and soil, whether that's chemical leaching in the watershed or white supremacy in our institutions and in our bodies.

Renard sees farming, land ownership, and food production as strengthening sovereignty and individual and collective agency, and potential means for the liberation of black and brown communities:

My parents . . . felt that, you know, as a black child, that I should be studying something different than agriculture because we needed to get away from farming because of this anti-agricultural black-lash that a lot of black folks still have. They equate farming to slavery, and the reality is it's the exact opposite. When you own the land, and you're a farmer, you can really provide for your family in a much better, safer way, generally.

Study participants also shared what cooperative and emancipatory farming models can look like in practice. Jonathan McRay demonstrated justice and fairness through reparations and restitution:

And holding ourselves accountable to making those relationships right, and for us, that looks like redistributing a percentage of what we make from the forest farm every year to movements and groups who have been most violently targeted by the oppressive forces in our country...we see it as a necessary part of reparation, but also as an imitation of the trees who gave away a lot of their photosynthetic energy to the soil that sustains them.

Comparatively, Ira Wallace exercises her values of justice and fairness by supporting partnering farmers through a cooperative seed exchange business model:

I came up during the civil rights movement, and so the importance of trying to live a life

that would create a world where everyone could live a good life is really important. . . . I know that not everybody is gonna go that far, but we share our money equally. . . . I think in farming that it is really a crime and a shame that the farmers get so few of the dollars that go into food. In our seed company, what we try to do is both help our farmers reduce costs and incrementally help them have more of the dollars [5% of the cooperative's seed sales go back to the farmers in addition to what they are initially paid for seed the cooperative purchases from them], the seed dollars that a consumer is paying. . . . Those are our kinds of values.

. . . Just having grown up with all kinds of crazy fruit trees and garden plots right around all, right around the edges, kind of makes having mixed agriculture something important. Just the thought that we should try to live simply, a good life, a good life that everyone can share. Not a fancy rich life that some people have to live like slaves in order for you to have.

### *The supporting of livelihoods and social well-being by resisting suburban development and an ethos of community care*

Farmers and farming communities are confronted with encroaching suburban development. This theme was mentioned in four of the 12 narratives. These farmers encourage equity and social well-being as they face suburban development and resist encroachment. Community care is reflected in the following insights.

Janet Aardema and her husband expressed their social and environmental activism through land stewardship, community care, and social resistance by creating a farm in a rapidly developing urban and suburban region:

Where our priorities shine through is in this decision that we made. . . . We chose to be on these five acres in a really developed suburban county instead of being on 20 acres in a more agricultural and farther away county. . . . We think it's important that land be used in

Chesterfield County to feed the community, rather than just sort of standing by and letting it be okay for more and more land to be paved over. . . .

Jonathan McRay recognized that farming connects people to the broader community of living things through an interdependent relationship of deep care and engagement:

But I see the community as I do the watershed, as the actual ecological place and all the creatures that live here. And so, by farming, by growing soil and food, and seeing the flow of water, that to me feels like one of the primary ways to understand what a community is because it's both a sense of belonging but also an act of participation and accountability and responsibility.

Participation, accountability, and responsibility were also reflected by Gerald Garber, a dairy farmer in Augusta County, who decided to allow public regulatory officials and the broader environmental community access to his dairy farm for education and conversations on salient topics like nutrient management, water quality improvement, soil health, natural resources conservation, and ongoing advocacy for Virginia agriculture:

I'm like, "you know what, I can sit at home and complain, or I can try to talk to people." I have people all the time say to me, you let people from the EPA come to your farm? Yep . . . if they don't ever see it, how do they know what's going on in the real world? . . . I'll let anyone in who wants to come in. And I will take my chances that I can justify that what I'm doing is correct.

## Discussion and Conclusion

This narrative-based research of agroecological knowledge inquiry holds implications for our research and practice responses to the mounting social, economic, and ecological crises facing food and farming systems. Sustainability requires researchers and practitioners to go deeper and beyond strict linear thinking. Like rhizomes and

mycorrhizae in a plant-soil ecosystem, these narratives help us understand food and farming as an entangled and co-generative system of social and ecological exchanges and associations with soil, food, health, and liberation. Rhizomes and mycorrhizae are agroecological metaphors of relational farmer knowledge networks and exchanges hidden but critical to epistemological possibilities in the food system. We encourage further use of metaphors to shift conversations, disrupt current understanding of relationships, illuminate present paradoxes, and frame future possibilities.

The narrative inquiry approach based on a whole measure dialogical framework allowed us to learn that farmers' lived experiences, values, and relationships are rhizomatic and mycorrhizal in nature. Farmer knowledge like rhizomes have epistemic origins and lateral adventitious roots, enabling us to unearth and better "see" how agroecological knowledge is essential for growth and survival within an ecosystem and how farmers use their knowledge base to engage and contextualize different principles and practices. Similarly, like the relationship of plant roots with mycorrhizae soil fungi, farmers have extensive knowledge networks and hidden associations that require digging deeper into lived experiences to see the symbiotic relationships necessary for knowledge formation.

The public narratives of participating farmers allowed us to conceptualize the constructive generative aspects of farmer agroecological knowledge that are hidden below the surface but formative within our current food systems. Farmers' stories and narratives require investigative digging by researchers and practitioners to uncover hidden epistemological assets. Researchers and practitioners must delve deeper into farmers' stories and narratives to discover how lived experiences, values, and relationships inform principles and practices to achieve just humane ends and create new possibilities. By starting with a conversation about soil, conservation, and place, we learned agroecological knowledge provides different imagery of farmers altogether; farmers' narratives and their expression of agroecological knowledge can challenge dominant research norms, resist stereotyping, and address unjust practices and racialized vulnerabilities in the food system.

Therefore, we need to reevaluate and rethink how we engage with farmers as educators, movement makers, and practitioners. We must reconsider the notion of best research and management practice to account for lived experiences, values, complexity, depth, and the context of social-eco relationships. Farmers' social-eco relationships are expansive and extensive—like rhizomes and mycorrhizae—but harder to see and account for in agroecological knowledge formation, production, and expression. As demonstrated in Table 1, soil and water conservation practices are easier to count and list in tabular form. Listening and storytelling take more time but are generative research methods that can go below the surface to add depth and texture to the analysis of agroecological knowledge and the adoption and use of these practices. Food systems practitioners and researchers should be encouraged to listen and engage in storytelling and narrative-based research to learn about the socio-political aspects of agroecology and open new relational spaces in food and farming systems. Additionally, our extension and education documents need to focus more on case studies because of the idiosyncratic nature of farmers' stories and their operations rather than generalizable knowledge.

Conceptually, our research aimed to challenge the hegemonic gender-race-class politics of the food system (e.g., Alkon & Agyeman 2011; Guthman, 2008; Slocum, 2007) and the epistemic politics that agroecology is 'thinly' legitimate (Montenegro de Wit & Iles, 2016). We specifically recognize how these politics affect our work life and the ability of researchers, extension educators, and practitioners to question working assumptions. Furthermore, these hegemonic and epistemic politics have narrowed vision, so other pathways and lines of flight for food system reform and practice are blocked, made invisible, or erased (Orlie, 2009).

We especially acknowledge the administrative and material demands neoliberal governance and rationality have created for the USDA, Natural Resources Conservation Service, Soil and Water Conservation Districts, and Extension professionals, and how they serve farmers and communities. Neoliberal framing of governance inherently

weakens research, limits educators and conservationists' ability to build durable work relationships with farmers, minimizes opportunities for listening, and constrains food and farm system possibilities. Farmers' narratives are living, richly textured, multidimensional in structure and depth, and their influence on principles and practices must be considered. Linear thinking about adoption principles and practices alone is inadequate. We emphasize the following points for application and consideration for research and practice by scholars and scholar-practitioners:

- Support food system practitioners in their efforts to acknowledge the stories and experiences of farmers as critical to knowledge and movement formation. Encourage stories and narrative-based learning approaches in everyday practice, educational documents, and programming.
- Support and participate in narrative, story, and engaged listening research and outreach approaches and methods as a deeper multidimensional inquiry of human and natural systems ecology. For example, a methodology such as a story circle can invite practitioners and researchers to explore dominant discourses; encourage partnerships; and acknowledge potential research and education possibilities.
- Use an agroecological lens to further research the indigenous knowledge of farming communities in Virginia and beyond.

This narrative-based research helps us see how farmer knowledge is constructed in a social-political-cultural context and that knowledge is more than a set of "best practices." The narratives of the 12 farmers reveal the depth of experiences and how their values intersect with soil health, liberation, economic sustainability, and community resiliency. Our research and educational responses to mounting social, economic, and ecological crises must be reevaluated and recontextualized. Today's food and farm system challenges cannot be readily "solved" by technical and

rational “best practices” but must be embraced with expansive and extensive systems of knowing that are more rhizomatic and mycorrhizal in design and practice, where listening, storytelling, and generative approaches to research are characteristic of agroecological knowledge and systems.



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## Capital in context: Funding U.S. Inland Northwest food hub development before and during COVID-19

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### Abstract

This study focuses on how 10 food hubs in the U.S. Inland Northwest resourced their start-up and development before and during the first year of the COVID-19 pandemic. Case studies include cooperative, government agency, nonprofit, and family-owned food hubs. Because of the prominence of nonmonetary values as drivers in food hub development, we used a social entrepreneurship framework to understand how people, context, and a social value proposition affected access to and use

of capital resources. We found that each food hub had a unique mix of capital sources and profitability that reflected and shaped who was involved, their mission, and their available resources. All operating food hubs that we studied strengthened and grew their business during the first year of the pandemic. Two federal COVID-19-related programs—the Paycheck Protection Program and the Farmers to Families Food Box Program—played brief but instrumental roles in helping most organizations early in the pandemic, enabling several to pivot from heavily impacted markets (such as restaurants and educational institutions) to direct-to-consumer markets and food security efforts. For several, panic buying early in the crisis followed by

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### Author Note

The authors do not have potential conflicts to declare. Darin A. Saul and Soren M. Newman also wrote five case studies of organizations included in this paper as part of a food hub feasibility study for the Walla Walla Valley, Washington.

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a consistent large increase in demand fueled organizational growth. The food hubs adapted quickly, with some significantly changing their business model and expected trajectory as they weathered the first year of the pandemic, coming out stronger than before.

### Keywords

Food Systems, Local, COVID-19, Pandemic, Food Security, Social Entrepreneurship, Community, Rural, Grants, Paycheck Protection Program, PPP, Farmers to Families Food Box Program

### Introduction

Food hubs are becoming key players in developing and coordinating local and regional place-based food supply chains throughout the United States. The number of food hubs recognized by the U.S. Department of Agriculture (USDA) increased approximately 83%, from 139 in 2009 to 254 in 2021 (Neal, 2017; USDA, Agricultural Marketing Service, 2021). While U.S. food hubs have a relatively high survival rate (88% survived from 2005 to 2017 compared to a 53% survival rate for all types of new businesses) (Feldstein & Barham, 2017), some end in costly failures, and many efforts in various stages of planning and investment never launch (e.g., Morgan, 2015). The importance of establishing a strong financial model from the start is a critical lesson learned from food hubs that have closed (Feldstein & Barham, 2017). The COVID-19 pandemic has drastically impacted food distribution needs, challenges, and resources, requiring swift and nimble response and repositioning by distributors (Blacher & Fields-Kyle, 2021; Ollove & Hamdi, 2021). At this point, little is known about the financial resilience of food hubs in the pandemic and its impact on their business trajectory.

The USDA, Agricultural Marketing Service (2021) defines food hubs as “businesses or organizations that actively manage the aggregation, distribution, and marketing of source-identified food products to multiple buyers from multiple producers, primarily local and regional producers, to strengthen the ability of these producers to satisfy local and regional wholesale, retail, and institutional demand” (para. 1). Although this definition focuses

on providing access to wholesale markets, food hubs in practice have more diverse business models. While 39% of food hubs responding to the 2019 National Food Hub Survey primarily focused on wholesale markets, 22% focused on direct-to-consumer sales, and another third focused on both (Bielaczyc et al., 2020). Food hubs also have various legal business structures: in 2019, 17% were cooperatives, 40% were nonprofits, and 36% were for-profits (Bielaczyc et al., 2020). Food hubs provide more than economic opportunities for small and midsized farms. Most aim to advance social and environmental goals: Bielaczyc et al. (2020) found only 12% did not identify social and environmental goals as important. Another form of nonprofit food hub is the community-based organization, which focuses on “developing the capacity of producers they support, and creating infrastructure that supports and maintains market access for them” (Matson et al., 2013, p. 9).

Nonmonetary values are often important drivers in food hub development, even among more profit-driven food hubs (Ostrom et al., 2017). To address this focus on nonmonetary values, we use components of the social entrepreneurship framework, advanced by Austin, Stevenson, and Wei-Skillern (2006), to explore how people, context, and a social value proposition reflect and shape access to and use of capital as part of resource mobilization during food hub development. The model considers people's skills, attitudes, knowledge, contacts, experience, and values that contribute to success (Austin et al., 2006). Context is critical in understanding the impact of factors outside the entrepreneur's control, of which the COVID-19 pandemic provides an exceptional example. We consider social value proposition in terms of how mission reflects and shapes resource availability and development trajectory. These factors contribute to the deal, which defines who does what and who benefits. The deal in a social enterprise transaction includes not only economic benefits, but also altruistic goals, social recognition, autonomy, and satisfaction of personal needs (Austin et al., 2006). These, in turn, shape the opportunities in which entrepreneurs invest resources for future financial, social, and personal returns. Opportunity is not necessarily perceived

the same by different participants, and a common challenge is developing a shared definition of opportunity to create motivation for joint action (Austin et al., 2006). According to Austin et al. (2006), social entrepreneurship often relies on a range of capital sources. The 2019 National Food Hub Survey reflected this diversity. Food hubs reported revenues from federal, state, and local government; foundations; donations; member fees; rents; other business income; and in-kind support (Bielaczyc et al., 2020).

The social enterprise food hubs that Avetisyan and Ross (2019) studied started by identifying a need or issue and then recruited stakeholders and partners willing to contribute, which largely determined the resources available for the start-up. Profitability was still important, and while social goals were their long-term mission, the short-term goal was to generate enough revenue to operate. One of the hubs studied by Avetisyan and Ross (2019) began as a profit-driven business and then refocused on social values as it developed, demonstrating that different values may manifest at different stages. Through this integration of long-term social goals and short-term business goals, food hubs can create social change and meet social needs, as well as offer financial opportunity for producers and other private businesses (Avetisyan & Ross, 2019).

This study draws on 10 U.S. Inland Northwest food hub case studies. We focus on the evolution of their business strategies before and during the first year of the COVID-19 pandemic to understand (1) how they funded the start and scale-up of their operations, (2) how they adapted during the pandemic, and (3) lessons learned that could support food hub success and survival throughout the country. We consider how a critical mass of capital from diverse sources is recruited as part of food hub start-up and development and how this differs for cooperative, government agency, nonprofit, and private family food hubs.

In the following, we describe our study area and methods before briefly presenting each food hub, organized by business model. Next, we discuss the role of capital and its relationship with context, people, and social value proposition and the impact of the COVID-19 pandemic on food

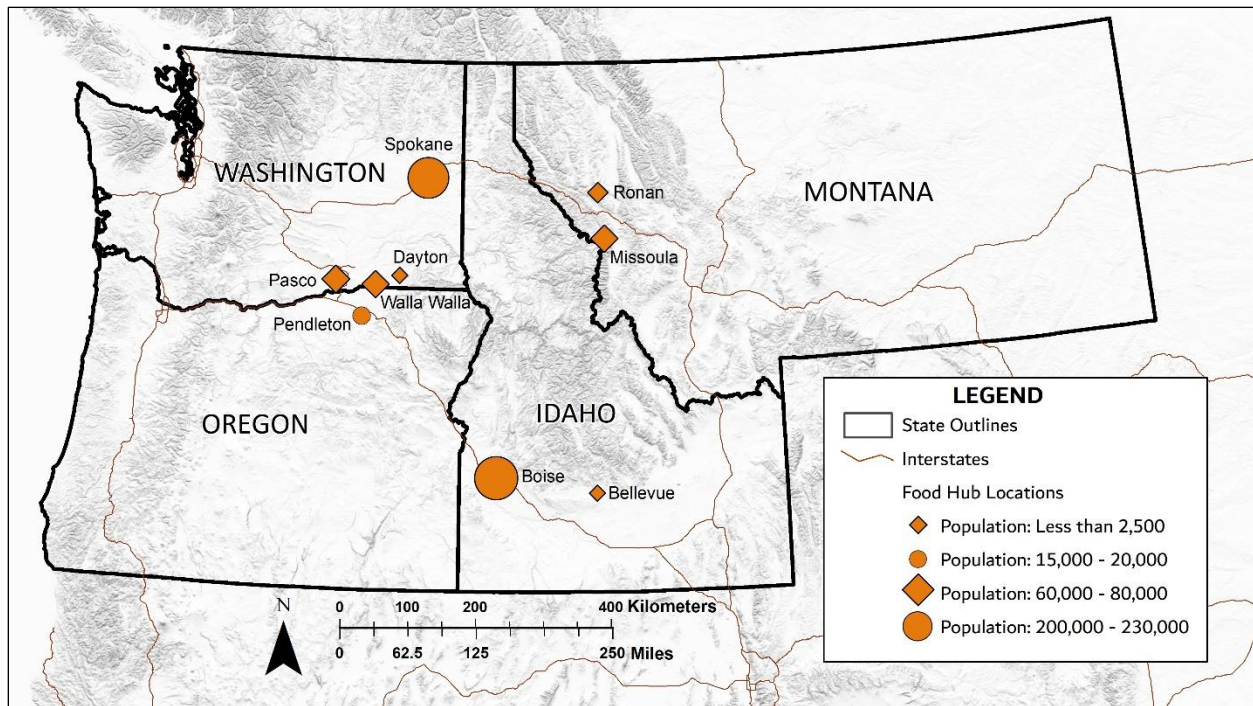
hub business trajectory. Finally, we conclude by identifying implications for practice and research.

## Methods

We conducted 10 case studies of food hubs representing different scales, services, models, and development stages in the U.S. Inland Northwest. We chose this area because we wanted to study local and regional food system development in rural areas typical of the U.S. West (Figure 1). The Cascade Mountains to the west insulate the Inland Northwest from the dense populations of Portland (Oregon) and Vancouver, Seattle, and Tacoma (Washington), making the Inland Northwest economically and culturally distinct. This region is quite diverse in production capabilities, population densities, land use, level of state support, and local culture.

Seven of the 10 case studies fit the USDA definition and self-identified as food hubs. Of the remaining three, one identified as a transportation company and two as business incubators. For this study, we consider these three as food hubs because they offer food hub services or because the businesses they support offer these services and collectively fulfill a food hub role that the case study organization enables. Nonprofits in this study were founded and supported by local government agencies as an economic development strategy. We included one food hub that went out of business during this research, one in the planning and start-up process, and one that went through a planning process but has not yet launched. Table 1 provides an overview of the 10 case studies.

The case studies are based primarily on in-depth interviews we conducted before and after the onset of the COVID-19 pandemic. We consider March 2020 to March 2021 the first year of the COVID-19 pandemic because significant impacts in the study area began during this period. We conducted the first round of interviews in 2018–2019 using a semi-structured interview guide with questions focused on history, organizational structure, sources of capital, and evolution. We asked about services, facilities, and equipment; constraints and opportunities for further development; and how demand has changed over time. We also

**Figure 1. Population Size of Case Study Food Hub Locations <sup>a</sup>**

asked about the role of relationships, partnerships, and values in their business development. Finally, we asked about lessons learned and their planned next stage of development. Representatives from each case study reviewed and approved our description of their operation in early 2021, at which time the eight active food hubs indicated significant changes due to COVID-19. We followed up with an additional interview with these food hubs, asking them about their experiences during the first year of the COVID-19 pandemic, including the role of the USDA Farmer to Families Food Box Program (FFFBP) (part of the Coronavirus Food Assistance Program), U.S. Small Business Administration Paycheck Protection Program (PPP), and other COVID-19 relief funding; how COVID-19 had impacted their business model; and how their plans had changed. We conducted more than one follow-up interview for some, depending on the complexity of the operation and its evolution. Ultimately, case studies involved at least two interviews with at least one representative for a total of 23 food hub interviews with 24 participants.

We supplemented our food hub interview data

with a review of publicly available information about each operation found online (e.g., websites, reports, and news stories). The case studies were also informed by 52 additional interviews involving 61 key informants representing positions throughout the food hub supply chains (i.e., producers, buyers, conventional food distributors, government agencies, and nonprofit organizations). These interviews focused on opportunities, barriers, distribution strategies, interests, motivations, relationships, and values related to participation in local and regional food supply chains. Interviews lasted approximately 60 minutes and were recorded and transcribed with permission. We analyzed all interviews using ATLAS.ti software following the process described by Charmaz (2006).

## Food Hubs in the Inland Northwest

### *Cooperatives*

#### *Local Inland Northwest Cooperative Foods*

Local Inland Northwest Cooperative Foods (LINC) is an employee- and farmer-owned cooperative food hub with approximately 50 members in

Spokane, Washington. Until 2020, LINC's primary focus was to aggregate products from farmers within 250 miles (402 km) of Spokane and distribute them to wholesale buyers within a 3-hour drive. LINC also operates a community supported agriculture (CSA) service called LINC Box, which served approximately 130 consumers in the greater Spokane area in 2019. The cooperative offers quality assurance and a web-based ordering system for buyers, and liability insurance and for-fee minimal produce processing for farmers. In 2016, they launched LINC Malt, which makes small-batch malt for craft brewers and distillers.

LINC started in 2014 with few resources

beyond an old vehicle and the co-founders' time. Early on, it transitioned from renting cold storage from a hotel to partnering with Second Harvest Food Bank for cold, frozen, and dry storage space before being able to afford its own warehouse facility. Using available resources (e.g., free office space in a church basement) and sweat equity, it focused on creating transactions to start the business and identifying resources for scaling up. To do so, it relied on grants and awards and generous and supportive friends and community organizations. Over several years, it built the capital and infrastructure needed to reach its current state of development: "[We built] the business organically figur-

**Table 1. Case Study Food Hub Overview**

Case study	Model	Location and territory	Primary services	Years
Local Inland Northwest Cooperative Foods	For-profit farmer and employee-owned cooperative	Spokane, WA; serves region within 3-hour drive	Aggregation, distribution, value-added processing, marketing	2014–current
Western Montana Growers Cooperative	For-profit farmer-owned cooperative	Missoula, MT; serves western MT	Aggregation, distribution, marketing	2003–current
Idaho's Bounty	For-profit farmer and consumer-owned cooperative	Boise, ID; served southern Idaho within ~3–5-hour drive	Aggregation, distribution, marketing	2007–2018
Blue Mountain Station	Managed by Port of Columbia	Dayton, WA; serves southeast WA	Commercial kitchen, grocery cooperative, business incubation	2013–current
Mission Mountain Food Enterprise Center	Nonprofit managed by Lake County Community Development Corporation	Ronan, MT; serves western MT	Co-pack, commercial kitchen, value-added processing, business incubation, technical assistance	1998–current
Pasco Specialty Kitchen	Nonprofit supported by the city of Pasco	Pasco, WA; serves Pasco area	Commercial kitchen, business incubation, technical assistance	2003–current
Walla Walla Valley Food Hub	Nonprofit/private cooperative	Walla Walla, WA; expected to serve Walla Walla Valley	Value-added processing, storage, co-pack, distribution	In planning and start-up
Pendleton Food Hub (Proposed)	Nonprofit	Pendleton, OR; planned to serve within 250 mi. (402 km)	Commercial kitchen, aggregation, distribution, marketing, value-added processing	Not active
Turning Point Transportation	For-profit family business	Walla Walla, WA; serves central WA and western ID	Aggregation, distribution	2016–current
Kraay's Market and Garden	For-profit family business	Bellevue, ID; serves Wood River Valley	Production, aggregation, distribution, marketing	2013–current

Note: ID=Idaho; MT=Montana; OR=Oregon; WA=Washington state

ing out where we can borrow resources from other partners until we can pay for those things ourselves, and then strategically finding those grants that...allowed us to build the business.” When it started in 2014, LINC had about \$30,000 in sales.<sup>1</sup> In 2020, LINC’s sales reached roughly \$1 million (Segerstrom, 2020).

Grants and awards have been instrumental to LINC’s development, enabling it to purchase equipment and vehicles, hire staff, pay living wages, and otherwise leverage and sequence its expansion. For example, LINC hired a sales and marketing person with a \$300,000 USDA Specialty Crop Program grant. A USDA Value-Added Producers Program grant helped get the cooperative its own building. In addition, LINC won \$25,000 through a University of Washington business accelerator competition—unique among those we interviewed—to develop LINC Malt as a higher-margin, value-added business with year-round revenues. The Washington State Department of Agriculture also helped LINC coordinate, network, train, and secure grants. Before 2020, LINC’s fee of 25% of wholesale revenues for distribution and sales of member produce was an important source of capital.

The COVID-19 pandemic had a strong effect on LINC. LINC Malt was expected to grow dramatically in 2020 to provide the revenues LINC needed to become profitable, but sales were affected by the pandemic and held steady at the previous year’s level. Adapting to the new context, LINC instead leveraged its experience and logistics for LINC Box to secure a first-round \$100,000 FFFBP contract that not only kept it afloat but enabled it to further develop capacity for serving higher-margin direct markets. It did not receive additional contracts from the FFFBP but transitioned to support ongoing county and state food security efforts. Concerning federal, state, and local food box programs that emerged in response to the pandemic, an interviewee said,

That’s been a lifesaver for us ... what a cool vehicle to be able to invest in food systems and also give people access to great, healthy, fresh

produce. ... Because of these box programs, we were able to move the same amount of produce [in 2020]. So yeah, there wasn’t any shortfall or anyone we had to turn away.

The PPP was also important as it allowed LINC to cover its rent for about three months and hire back two staff members who had been laid off at the beginning of the pandemic. These programs also helped it prepare for a different business trajectory than it had envisioned a year earlier. During the first year of the pandemic, LINC switched focus to direct markets and transitioned out of wholesale. Many of its primary wholesale customers had been in higher education and restaurants, which were heavily affected by the pandemic. In addition, it expanded LINC Box and LINC Malt and launched LINC Marketplace, an online direct-to-consumer sales portal. Participation in food security efforts, a new strategy resulting from the pandemic, remains an important priority moving forward. As a result of these changes, 2020 was the first year LINC was profitable, and it expected to be so in 2021.

#### *Western Montana Growers Cooperative*

Western Montana Growers Cooperative (WMGC) is a farmer-owned aggregation, distribution, and marketing food hub in Missoula, Montana, that started in 2003. WMGC distributes products, including produce, dairy, and meat, from 40 member and 40 nonmember producers in western Montana to wholesale markets and directly to consumers through their CSA, which accounts for 5% of sales. The cooperative has a web-based database to update products and track sales; however, four employees handle most sales via email or phone. While WMGC operates four trucks of its own, partnerships with other distribution companies have helped expand its territory:

We have our own trucks we run north and south, and then we partner with other distributors to go east to Butte, Bozeman, Helena, Billings, and west into Spokane and northern Idaho. And those partnerships with other dis-

<sup>1</sup> All values are in U.S. dollars.



tributors is a real important part of our business.

WMGC's annual capital includes 20–25% of sales revenues. A portion of its working capital comes from member loans, equity, and dues, which are \$150 for the first year and then determined on a sliding scale from \$150 to \$400 based upon a member's annual sales. For the first several years, WMGC's annual sales ranged from \$20,000 to \$30,000. At that point, it owned one truck and initially paid employees using grant funding. However, by year five, the operation was profitable with \$500,000 in sales. WMGC continued securing grants, which fueled growth. WMGC operated on a farm for the first 10 years and then moved into a centrally located warehouse in Missoula in 2014. The move cost \$400,000 and was financed with \$100,000 in grants, \$100,000 in loans from members, and \$200,000 in outside debt. Members are paid back through patronage dividends and equity shares at a rate of \$40,000–\$50,000 per year across the membership, with the intention to grow the amount distributed over time. WMGC is an example of a cooperative where a long-time manager and staff have led the organization through several evolutions to become a distribution company with \$4.66 million in sales in 2020.

So far, the pandemic has strengthened WMGC, which grew 15% in gross sales in 2020. It received \$67,000 of PPP funding early in the pandemic, which helped through several quarantine-related closures. It also received a first-round FFFBP contract, which helped distribute products for members whose sales had been disrupted by the pandemic. For WMGC, the biggest impact of the pandemic resulted from a frenzy of consumer panic buying early on. This increased demand from retail customers cleared its surpluses and has used all members' production since. It has also led to increased distribution of nonmember products. WMGC had a business model and strategy that kept it profitable and growing over two decades, serving it well as it weathered and grew through the first year of COVID-19. WMGC saw the FFFBP as temporary support that helped it get through the first year of the pandemic, and it did not change its business model or planned trajectory as a result.

### *Idaho's Bounty*

Idaho's Bounty was a farmer-owned aggregation, distribution, and marketing food hub cooperative that went out of business in 2018 after several restructuring phases over 11 years of operation. The cooperative served a vast swath of southern Idaho, including the Treasure Valley near Boise, the Wood River Valley near Ketchum, and the Magic Valley near Twin Falls. For a brief time, Idaho's Bounty made deliveries as far as Jackson Hole, Wyoming, and Salt Lake City, Utah. In addition to wholesale accounts, the food hub delivered directly to individual consumers. The intention was for customers to place orders through the Idaho's Bounty website, where farmers were responsible for updating their product availability and setting their prices. However, due to website complications, the cooperative hired sales representatives who managed many accounts and transactions by phone.

At its peak, Idaho's Bounty had approximately \$630,000 in annual sales; over 80 producer members; 1 full-time and 11 part-time employees; multiple trucks; and a facility with an office and dry, cold, and frozen storage. Start-up and operating capital were heavily reliant on donations from wealthy patrons looking to expand access to local, organic food in the Wood River Valley as well as loans from a limited number of farmer-owners. In addition, the cooperative relied on grants, a portion of sales revenues, and fees, credit, and equity invested by members. However, over time the cooperative became increasingly indebted to members. Idaho's Bounty was unique among case studies in attempting to use a public offering to raise money by selling shares to those beyond its membership. If the offering had gone through, Idaho's Bounty would have paid back loans, capitalized necessary equipment, and sought additional supply contracts. It focused on a public offering in part because of its poor financial performance. As one interviewee explained, "over the whole organization's period, no [banks] would give the organization any loans because they didn't like the financials."

Idaho's Bounty failed for several reasons from the perspectives of those interviewed. One said the cooperative had been too ambitious in hiring staff and purchasing equipment: "They sort of hired

expensive people and bought a big truck and, all of a sudden, the overhead was crushing.” One interviewee thought it had tried to solve basic business problems with grants rather than using grants to build and supplement the business. It also tried to serve a vast rural area with low population densities.

One lesson conveyed was the need for appropriate scaling of the operation to the revenues available:

It went from a little community thing to racking up a bunch of bills and needing to pay them, so [Idaho’s Bounty was] expanding the wholesale and expanding services over the course of five years trying to expand, expand, expand and it not happening. And then finally it imploded.

However, according to one interviewee, the biggest contributor to Idaho’s Bounty’s failure was its members’ lack of active participation in making decisions and covering costs. A small number of members made many of the decisions and, as members’ need for services increased, many were unwilling or unable to contribute to cover costs. As fewer members contributed, resources were exhausted. Idaho’s Bounty had five out of six attributes of successful food hubs identified by Feldstein and Barham (2017), including a business plan, professional staff with experience, a market assessment, and an understanding of the food production process. It also had many supportive partners. However, it could not secure a strong financial foundation despite many attempts to raise capital and expand operations. Idaho’s Bounty provides an example of the risk involved in these types of ventures, with some producers losing money in the end despite the donations and grants; agency, nonprofit, and university support; and a lot of goodwill and helping hands.

### *Government Agency*

#### *Blue Mountain Station*

Blue Mountain Station (BMS) in Dayton, Washington, terms itself a “destination eco-food processing park dedicated to the recruitment and marketing of

artisan food processors, primarily in the natural and organic sectors” (2021, para. 1). The Port of Columbia originally envisioned the project to recruit large food processing businesses to Columbia County. However, during the planning process, it reoriented to support small, local businesses: “What demand we ended up seeing were very small processors, not demand from large businesses wanting to move or expand.” It took seven years to go from conception to having an operational building. The first step was a marketing study funded by a program that no longer exists. The study suggested focusing development on the artisan food niche. Next, the Port of Columbia secured a \$80,000 grant for a feasibility study from the Washington Department of Commerce Community Economic Revitalization Board (CERB). It then secured \$1 million from CERB, which was matched with \$100,000 from the city of Dayton, Columbia County, Port of Columbia, Dayton Chamber of Commerce, and Pacific Power. This provided \$700,000 to buy and develop 28 acres in Dayton and about \$380,000 for infrastructure, such as city water, roads, and a parking lot, for the first eight acres. A significant portion of capital costs was paid with a zero-interest loan with a delayed payback to allow revenues to build during the first five years. The Port of Columbia also secured \$750,000 from the Washington State legislature through the Washington Public Ports Association and then raised the remaining \$350,000 needed to finish the first building through a local bond. The plan is that, once the debt is paid off, lease revenues will continue to fund expansion and operations.

BMS has been successful partly because the Port of Columbia secured resources only ports could access, including unique opportunities to receive state appropriations and local bond revenues. Equally important, BMS has fully rented its food business incubation space and has a waiting list of businesses ready to lease space as it becomes available. The organization recently constructed a new building, which was fully leased before completion. In addition, BMS rents a commercial kitchen for \$10/hour, which covers the cost of kitchen operations and contributes to the cost of a part-time manager. BMS also includes a grocery



cooperative that leases space and sells fresh and value-added products from local farmers at a 20% commission, a year-round farmers market, and a restaurant, none of which were imagined during the project planning phases. Through BMS, the Port of Columbia is serving the role of a community-based organization connecting producers with local and regional markets. It attributes its success, in part, to working with the Washington State Department of Agriculture from the beginning to design the building. Lease revenues currently support building maintenance, debt service, improvements, and some staff. Its founder at the Port of Columbia had the knowledge, capacity, and energy to access and secure the mix of capital needed to develop the project this far.

BMS has continued to grow through the pandemic and is beginning the process of adding a third building. All businesses at BMS survived the first year of the pandemic, and several have thrived. The cooperative grocery store more than doubled its sales in 2020 and added home delivery. It attributes the growth in sales to strong new interest among community members previously unsupportive of BMS or local foods. Commercial kitchen use “exploded” in 2020, as has the need for cold and dry storage. Craft beverage makers at BMS suffered the most when they had to close their tasting rooms, and several received funding from the PPP and from Washington State that helped them remain in business until in-person sales resumed. No one at BMS participated in the FFFBP, although several supported Dayton Food Bank efforts. At the beginning of the pandemic, BMS was already at full capacity and needed more space. The first year of the pandemic has only increased its urgency to start on its next building. While BMS’s primary mission is to incubate and support artisan food businesses, the businesses it supports deliver a range of food hub services, including marketing and sales, value-added processing, and food product development. BMS also directly provides food hub services by providing storage and shared equipment and resources for its tenants and direct-to-consumer marketing venues. BMS is also a hub of communication, coordination, and activity for food system development in the area.

## *Nonprofit Businesses*

### *Mission Mountain Food Enterprise Center*

Mission Mountain Food Enterprise Center (MMFEC) is a community-based nonprofit food processing, research, and business incubation facility. In 1998, a group of farmers partnered with the Lake County Community Development Corporation (LCCDC) in Ronan, Montana, to commission a food system assessment. The assessment, funded by a W.K. Kellogg Foundation grant, focused on regional agriculture-based economic development. LCCDC became home to the Cooperative Development Center for western Montana, providing technical assistance statewide due to the priorities identified, which included supporting cooperatives and building food-processing infrastructure. Funding from the USDA Rural Cooperative Development Program supported the launch of the Cooperative Development Center and a marketing plan for the newly envisioned MMFEC. As a result, LCCDC received one-time federal funding followed by one-time state funding over eight years to capitalize and develop the MMFEC, which in 2020 had \$4.5 million in revenues.

Staff, capital, and programs from the LCCDC and Cooperative Development Center have supported and helped sustain MMFEC’s operation. Considerable synergy exists across the entities. The lessons the Cooperative Development Center has learned while supporting the creation of value-added food cooperatives in the state (e.g., WMGC) have informed MMFEC’s successful business evolution. Grant-based program work has built experience, knowledge, and skills among staff across the three entities while providing the base funding for long-term staff. Grants continue to pay for support staff and functions at MMFEC, including most equipment and facility improvements, while revenues support the employees directly involved in value-added food processing and co-pack operations.

Before the pandemic, MMFEC’s co-pack operation had focused on supporting farm-to-school programs. But, due to changes in state-level support, school procurement had already dramatically dropped during the 2019–2020 school year. This

gave MMFEC available capacity for co-packing food boxes for food security efforts when the pandemic began. Early on, it received \$710,000 of PPP funding, which helped it bridge an initial loss in revenues. It used the funding to transition its co-pack operation to the food box program. MMFEC started repackaging food for the Montana Food Bank and integrated into the Montana food security network. It also partnered with WMGC on its FFFBP application and built boxes for that project during its first-round contract. MMFEC has kept its food box program going with donations and a foundation grant.

Throughout its history, LCCDC's status as a county-level economic development agency adept at accessing state and federal resources made it uniquely well-positioned to take advantage of available funding opportunities: "As a [project-driven] nonprofit ... we were able to tap into those funds and get new programs rolling out." It was the right organization, with the right amount of capacity, to take advantage of new government funding programs:

All these other policies and priorities that were coming down from the federal level and the state level. I mean [the] ... USDA Local Food Promotion grant program, Farm-to-School grant program, [and] Specialty Crop grant became really focused on local food. All of a sudden, all of these federal policies were being rolled out, and they were huge support mechanisms to operations like ours.

Now, after the first year of the COVID-19 pandemic, LCCDC has added donations, foundation grants, and fees from new clients as sources of capital.

MMFEC sees this transition towards food security and new sources of capital as a long-term shift in its trajectory. The nonprofit expects to expand co-pack and support services for producer cooperatives in the region as part of food security efforts. Its experience with co-packing food boxes also gave it experience in direct-to-consumer markets, where before its focus had been direct-to-institutions. MMFEC is building on this experience to develop an online direct-to-consumer market-

place. It is also exploring developing retail space and a restaurant, which it sees as the next steps in supporting local job growth and economic development.

As the oldest effort in our sample, MMFEC has navigated major changes in the availability of resources at federal, state, regional, and local scales. In doing so, it has overcome challenges to thrive in a remote rural area in northwest Montana. Moreover, as its response to the COVID-19 pandemic demonstrates, MMFEC continued to adapt to rapidly changing circumstances and available funding.

### *Pasco Specialty Kitchen*

Pasco Specialty Kitchen (PSK) is another example of a successful agency-supported, nonprofit business incubator that provides direct-to-consumer food hub services, including a farmers market, a walk-up sales window, and marketing services. The businesses it supports provide additional services, such as value-added processing and wholesale and direct-to-consumer sales.

In 1985, business owners in Pasco, Washington, created the Downtown Pasco Development Authority (DPDA). DPDA joined with the Pasco Main Street Program in 2002 to create PSK as an independent nonprofit aimed at revitalizing downtown Pasco (DPDA, 2021a). As part of this effort, the city of Pasco built a 12,000-square-foot facility for PSK that includes 10,000 square feet of commercial kitchen space for use by entrepreneurs developing manufactured, packaged, and commercial food products (DPDA, 2021b). In addition to providing fledgling businesses access to equipment and facilities, PSK provides technical assistance, free vendor space at farmers markets and other events, connections to other businesses and services, and meeting and classroom space.

PSK has also been active in connecting the businesses it supports to Craft3, a regional nonprofit community development financial institution (CDFI) that provides loans to start-up and growing businesses that do not qualify for traditional loans, and the Oregon Association of Minority Entrepreneurs. PSK's goal is to move businesses to operate fully on their own within three years. In 2019, PSK had 39 clients. About half were mobile food vendors who relied on PSK's equipment and facilities

to meet state health requirements. In early 2021, PSK had 16 clients but is in a stronger position than before.

PSK was initially funded by the U.S. Department of Commerce Economic Development Administration (EDA) Program and the Community Development Block Grant (CDBG) program of the Washington Department of Housing and Community Development, managed by the city of Pasco. Currently, the city provides a tax credit, reimbursement for some expenses, and free rent as the remaining public support for PSK, which amounts to about 25% of its annual capital. As part of the pivot away from long-term federal funding, PSK is increasingly supported through revenues and several large private foundation grants, reflecting and shaping additional change. The city of Pasco remains an important funder, but PSK is largely operating as an independent non-profit business and is actively growing non-public revenues. Its current budget is nearly \$600,000, with \$157,000 from the city of Pasco, \$400,000 from private foundations, and the remainder from other sources, such as donations and fees.

In response to COVID-19, PSK has further focused its value proposition and business model to support Latinx entrepreneurs, many of whom are immigrants, and Latinx community-building. As part of COVID-19 relief funding, PSK received a grant that included \$228,000 regranted to clients as minigrants. The nonprofit also hired more bilingual and bicultural staff, dropped costly business support services (e.g., accounting and legal services), created two recording studios for radio and video marketing and podcasting, and refocused more narrowly on business start-ups. The COVID-19 crisis catalyzed change that had been long needed from the perspective of one interviewee:

Before COVID [it] was nearly impossible [to change course] because we were so busy with so many other things that, [due] to COVID, we were able to relax, step back a little bit and focus on all these equipment and ... media that it's actually fostering that sense of belonging and community for the Latinos.

PSK partially redefined its service population, value proposition, and approach as it adapted during the first year of the COVID-19 pandemic.

#### *Walla Walla Valley Food Hub (Proposed)*

The Blue Mountain Action Council Food Bank (BMAC), based in Walla Walla, serves five counties in southeast Washington. Working with the Walla Walla Valley Food System Coalition (WWVFSC), BMAC received a \$100,000 USDA Local Food Promotion Program (LFPP) grant for a food hub feasibility study that was completed just as the pandemic began (Saul et al., 2020). BMAC hoped a private cooperative food hub would provide the processing and co-packing it needed and that together they could leverage a larger shared facility and improved economies of scale. However, BMAC received funding during all three rounds of COVID-19 relief, which changed its plans. It received \$2.4 million from the CARES Act in the first round and \$770,000 from the Consolidated Appropriations Act. BMAC's award from the American Rescue Plan will take care of the rest of its facility and vehicle needs. As a result, BMAC has doubled the size of its facility, tripled freezer space, increased cold storage, and added three new refrigerated trucks and a refrigerated van, thereby achieving all the facility and vehicle needs identified in the feasibility study. The FFFBP has also been crucial for its rapid growth as it addresses increased food assistance needs. BMAC is still supportive of the development of a food hub but no longer thinks it is appropriate on its site due to needing the full capacity of the facility as well as logistical and safety concerns.

In the meantime, when it was clear that local farmers markets would not be viable during the pandemic, Hayshaker Farm—an active participant in the WWVFSC—launched an online market and began distributing products from other local farms and a few items from other areas in Washington. At the end of the first year of the pandemic, it has reached its capacity for on-farm food hub activities and is ready to move into a larger facility. The pandemic has stimulated rapid growth and adaptation for BMAC and Walla Walla Valley producers, triggering the launch of a family-owned food hub and access to federal funding that supported BMAC's

expansion. Activities are underway to leverage these advancements into a larger cooperative food hub that meets remaining producer goals.

#### *Pendleton Food Hub (Proposed)*

In 2014, a partnership of local agencies and non-profit organizations started a food hub planning process in Pendleton, Oregon. It was meant to serve Umatilla, Morrow, Gilliam, and Wheeler counties in Oregon. Their plan included providing aggregation, storage, distribution, marketing, food processing, a commercial kitchen, and a storefront deli. They were also interested in including consumer education and workforce development, health-care services, and childcare as part of the facility. During one phase, Meyer Memorial Trust funded a three-year statewide project to bring all the players together to identify niches, gaps, and opportunities for investment or philanthropic support for food system development, which helped move the Pendleton effort forward. Meyer Memorial Trust also provided a \$300,000 grant to develop food systems in three counties. Despite several planning efforts, some producer interest, and regional and statewide nonprofit, agency, and extension support, the Pendleton Food Hub is still looking to gain traction. Challenges have included identifying skilled and committed people, getting buy-in from enough producers, a depressed local economy, and obtaining enough funding to establish the infrastructure necessary or carry out the next steps. For example, the effort has identified buildings in Pendleton suitable for a food hub but has not advanced the process to purchase one.

One interviewee thought a constraint was that the producers in the Pendleton area are too big to care about the development of a food hub. Also, they felt a constraint was that much of the agricultural area in these counties cannot be irrigated and is primarily dryland crops or livestock range, with produce production limited to small river valleys with more water. Another problem identified is a lack of local sales venues. For example, 17 grocery stores have consolidated into three in Pendleton; Wheeler County does not have a grocery store, which means people must drive 20 miles or more to the nearest one; and existing grocery stores buy little or no local produce. Another constraint iden-

tified was that economic development projects have focused on large-scale export commodities and do not support smaller producers, resulting in few local governmental supports. One interviewee thought that since the four counties have such low population densities, they need to develop a regional operation at a scale large enough to interest the larger producers while still providing access to smaller producers. They also identified producer mistrust as a constraint. They suggested buying a truck or another tangible asset so producers could see a food hub would be viable, thus reducing the perception of risk.

#### *Family Businesses*

##### *Turning Point Transportation*

Turning Point Transportation, LLC (TPT), is a trucking business based in Walla Walla, Washington, that transports produce from the field to buyers throughout eastern Washington and western Idaho. This was the smallest of the operations we studied, and the owner did not see the company as a food hub, although others identified it as providing food hub services. After being involved in trucking for over 30 years, the owner branched out on his own in 2016. The owner bootstrapped TPT from personal experience and finance strategies, including a vehicle loan, credit card, and line of credit at a commercial bank. Activities include aggregation via on-farm pickup and distribution to the first point of storage or processing. To supplement this work, TPT also moves heavy equipment and products for a large food processing company in the off-season. The owner occasionally provides producers with short-term storage in his trucks, and he expects to add a third truck soon dedicated to moving grain. Shortly after launching, the owner refocused TPT to a social entrepreneurship orientation. TPT's mission is to allow veterans to gain work experience after leaving the service. TPT has had no direct public funding and is an example of a business starting as a conventional one and then gaining a social focus as it evolves, similar to the example cited by Avetisyan and Ross (2019).

While TPT experienced a lull in business at the beginning of the COVID-19 pandemic, it was short-lived. As consumers started panic buying, a

large local retailer needed extra trucks to move products. This “windfall,” plus a \$13,000 PPP loan to pay wages to enable use of the second truck, carried TPT until the cherry season, and it had near-normal work moving produce through the rest of 2020. In addition, one of TPT’s main customers became involved in the first round of the FFFBP, and TPT served as its produce supplier. During the second round of the FFFBP, however, TPT combined forces with two other local businesses to win the bid to move produce from all of eastern Washington to two centralized locations where the boxes were created. These activities replaced any work TPT lost due to the pandemic and were expected to continue until the cherry season starts in 2021.

#### *Kraay’s Market and Garden*

Kraay’s Market and Garden is a family-owned business in Bellevue, Idaho, that serves the surrounding Wood River Valley, a high-margin, tourist- and amenity-rich area. Kraay’s started as a family farm in 2015 and then quickly expanded to include services for other producers, becoming Idaho’s first USDA-recognized food hub. The Wood River Valley’s isolated geography has helped funnel the region’s small producers through Kraay’s to reach local direct-to-consumer and intermediated markets, including retailers, restaurants, and institutions. By 2019, Kraay’s was picking up products from more than 50 farms. It also provided home delivery on rural routes as part of its on-farm pickup and delivery system. In addition to aggregation and distribution, Kraay’s provides marketing and billing services. Its online ordering system has a weekly schedule that provides predictability to both producers and buyers. Kraay’s hired several employees to keep up with growth and recently added a walk-in cooler.

As its business has expanded, Kraay’s has adapted to grow produce on its farm desirable to buyers but not grown by other producers. The growing season in the Wood River Valley is short; in addition to outdoor growing space, Kraay’s has three commercial greenhouses, two of which are heated for year-round production. Kraay’s communicates regularly with its producers about what is in high demand and short supply and has en-

couraged several to start producing year-round. It has also started distributing value-added and meat products. Kraay’s hosts events, including farm tours, kids’ activities, and produce vending, twice per year for its vendors, customers, and community members to strengthen existing relationships and build new ones.

In the early days of the pandemic, the Wood River Valley had one of the highest per capita rates of COVID-19 infection in the nation. Nearly everything in the valley shut down, including the Sun Valley ski resort, but Kraay’s website orders exploded: “That first weekend, after everything shut down, I opened the store at eight o’clock and I had to close it at noon that day because I had 350 orders. We were used to doing about 100.” Its customer base expanded dramatically through word of mouth as people looked for ways to buy food without leaving home. Panic buying was evident, with one customer placing an order worth \$1,900.

Kraay’s pivoted quickly to address the increased demand. It purchased a refrigerated trailer, took on volunteers looking for ways to help the community, and hired a part-time driver. It found that 250 orders per week was optimal and adjusted its capacity to meet this new level of business. As winter set in, orders decreased to about 180 per week, but Kraay’s planned to resume 250 orders per week once the regular growing season began. At least two restaurants that sell value-added products through Kraay’s website would have gone out of business, and several would have had to lay off more employees, without this income. Kraay’s also collects donations on its website to cover the cost of providing food boxes to 10 to 15 families each week.

Kraay’s built its business out of existing private resources and relationships without grant funding, public support, or loans. Moving forward, it plans to expand its aggregation and distribution activities, add a commercial kitchen, and increase community education efforts. The pandemic-motivated federal funding programs, such as the FFFBP, did not play a role in Kraay’s expansion during the first year of the crisis. Instead, Kraay’s growth was initially driven by direct-to-consumer panic buying that expanded its

customer base and sales volume to an optimal scale for the operation.

### Access to Capital and Value Propositions

The development trajectory of these businesses and organizations reflects the opportunities available to them, the people involved, the capital available, and their social value proposition. WMGC and Idaho's Bounty started with producers pooling their private resources and agreeing to work together to access new markets. A small group of founders bootstrapped LINC into existence to advance more equitable local food systems. Staff at county and city economic development agencies started community-based nonprofits to advance community-level economic development goals. The Walla Walla Food Hub pulled together multiple ongoing efforts by producers and nonprofits to address a range of needs by diverse stakeholders. The Pendleton Food Hub planning effort identified community needs but has been unable to secure local support for the next steps. In contrast, the family businesses leveraged their food hub start-ups from existing businesses, relationships, and assets or personal credit. All had a unique mix of people, resources, value proposition, and context. The constant among the operating food hubs has been flexibility and rapid adaptation rather than a common start-up strategy, base of resources, or business model.

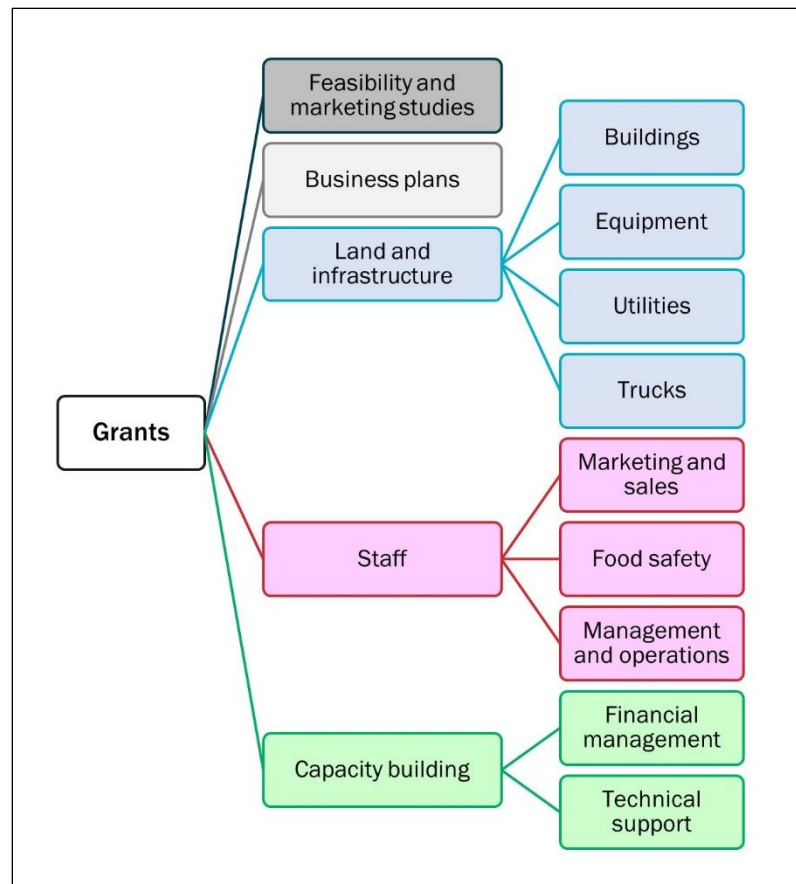
Grants served many financial purposes in cooperative, agency, and nonprofit food hub development but none directly for the family businesses (Figure 2). All the cooperatives received federal and state funding either as the main recipients or as beneficiaries and participating partners in larger grants spearheaded by public agencies and universities or colleges. Although grants have been instrumental to survival and growth for LINC, WMGC, and the Walla Walla effort,

these organizations' goal has been to operate on revenues and use grants, in-kind support, and other resources to accelerate growth and support sustainability rather than to fund basic operations. Interviewees from Idaho's Bounty suggested that an overreliance on donations and grants masked problems with the organization's basic business model: specifically, that it was not profitable.

The cooperatives also all received in-kind support from local and state agencies, universities and colleges, and nonprofit organizations (e.g., food banks). In addition, the cooperatives integrated their members' private resources, and the private family food hubs integrated their family resources, strategies unavailable to agencies and nonprofits. Being a cooperative enabled them to draw from a wide array of resources in addition to business sales and loans.

The value propositions differed considerably

**Figure 2. The Role of Grants in Cooperative and Nonprofit Food Hub Development**



by business structure, but all the food hubs tried to advance nonmonetary goals. The cooperatives were dedicated to transparent and equitable supply chains and other social and environmental values but primarily focused on providing producers profitable market access. LINC expanded the cooperative ownership model to include employees as members. The agency and nonprofit food hubs were intentionally tasked with unprofitable work to support business development rather than be stand-alone, profitable businesses themselves. The focus and mission of the agency and nonprofit hubs also reflected their context, as all three worked in disadvantaged communities: two in low-population rural areas and one in a low-income, economically distressed urban area. Context affected their mission and resource availability, reducing access to some types of local resources while making them eligible and competitive in securing state and federal funding. For the family businesses, being profitable was a non-negotiable value. Still, both had strong value propositions that shaped their activities, and both increased their focus on generating social value as their businesses grew. Agencies and nonprofits fulfilled roles of private food hubs in some rural and economically distressed areas, and private food hubs fulfilled agency and nonprofit roles in others.

### **Effects of the COVID-19 Pandemic**

One year into the pandemic, all case study food hubs held steady or had higher profits than in the previous year. Federal, state, and local COVID-19-related programs were instrumental in offsetting revenue losses resulting from the pandemic. The PPP played a critical role for several, in large part because salaries were not tied to a specific workload. MMFEC and LINC used PPP funding to shift from wholesale to direct-to-consumer markets. PSK used PPP funding to refocus on Latinx business start-ups, marketing, and community-building. PPP funding gave all three time to reorganize their facilities, build new partnerships, and shed unprofitable operations to become more competitive and profitable than before the pandemic.

The FFFBP was as important as the PPP for the survival and strategic development of several

food hubs. LINC, MMFEC, and TPT all pivoted to participate in the FFFBP and other local and regional food security programs as part of their pandemic adaptation. For WMGC, participation was minor compared to its overall operating budget. However, WMGC's participation in the FFFBP affected MMFEC, which retooled, built new partnerships, diversified funding, and translated its co-pack operation to food security efforts. Participating in local, statewide, and regional food security efforts is now a priority for both MMFEC and LINC.

For LINC, the FFFBP provided a lifeline through the first summer of the pandemic. LINC was especially hard hit because it centered on higher education and restaurants as its wholesale markets. However, the organization successfully transitioned to more profitable opportunities that strengthened its business. The loss of restaurant markets was less impactful for WMGC because it was better established than LINC, and a large portion of its business was wholesale to grocery stores, which experienced consumer panic buying and increased interest in local and regional products. Federal COVID-19-related programs were critical to the survival and growth through the first year of the pandemic for one family business, but not the other; and like WMGC, they both benefited from panic buying early in the pandemic and sustained increased demand in direct-to-consumer, food security, and wholesale channels.

### **Conclusions**

This paper makes several contributions to existing knowledge about food hubs and local and regional food systems development. It includes data collection and analysis in the years immediately before and during the COVID-19 crisis, enabling us to analyze the early impacts of the pandemic, the role and benefit of public programs in local and regional food systems, and the adaptation of food hubs in response. The Federal Coronavirus Food Assistance Program played a limited but instrumental role for most in stabilizing, growing, and refocusing their activities. Although only TPT participated in later rounds of the FFFBP, the surge of funding at the local level during the first round better connected our case study food hubs

to local and regional food security efforts and led to an overall increase in demand. The federal programs provided resources directly and indirectly for the food hubs to retool, build new relationships, and pivot to new opportunities. Hopefully, the need for food assistance programs will decrease as the pandemic subsides, employment improves, and stimulus funding disappears. Some heavily impacted markets will return, which will provide additional opportunities for new growth, competition for consumers, and further research opportunities.


For many, the pandemic increased interest in local and regional food systems as an important part of local resilience and highlighted weaknesses of national and global supply chains. Leveraging new scales of development from increased participation in local and regional food systems is an important next step. Understanding how these factors will affect future food hub business trajectories and local and regional food systems development is worthy of continued research.

Our exploration of agency and nonprofit roles in delivering food hub services in economically challenged areas where private and cooperative business models have less opportunity also breaks new ground. Few people in these areas know the USDA definition of a food hub. The term is a bucket for a wide variety of intermediary players connecting local producers and entrepreneurs to local and regional markets. The role of a food hub includes coordinating, supporting, and spearheading these efforts, which is a role agencies and nonprofits are fulfilling in some areas. These organizations can be understood in terms of multiple systems. Their role in local food systems development, including developing the services that cooperative and private food hubs provide elsewhere, is critical, especially in disadvantaged areas. But rather than delivering all services themselves, their impact is also through the businesses they enable to provide these services. Because of their greater access to and integration of private foundations and public resources, they can thrive in areas where local resources are insufficient to support a privately owned hub. Their value proposition, legal structure, and business model work well for this type of development in this type of context. They play a synergistic role with private

food hubs in connecting local production to local and regional consumers in disadvantaged areas. Expanding this research to include other complex disadvantaged areas, such as Native American reservations, remote rural areas, and areas with a concentration of immigrants, are the next steps in understanding the interaction of people, context, and capital in successful local food systems development that advances multiple monetary and nonmonetary goals.

We found that adaptation has been key to developing successful food hubs, and most case study food hubs have refocused their business approach more than once. The mix of available capital for any particular hub reflected the people involved, the resources they recruited, and their specific local and state context. For the cooperative, agency, and nonprofit food hubs, grants were a part of their business model, and their success depended upon securing them. While grants have enabled growth, some have also been a challenge to dismount. Some activities and programs started with grants that seemed critical at the time but did not make sense once the grant ended and needed to be cut. Those with grants central to their business model tried to braid multiple grants, donations, volunteers, in-kind services, and other revenues to resource their operation in a way that provided the flexibility and stability they needed.

While the pandemic has been stressful and tumultuous, the operating food hubs we studied have demonstrated great agility and resilience in successfully navigating change and disruption. As opportunity changed during the pandemic, they grew in their role of connecting small and mid-sized farms to consumers and intermediated buyers. For some, the pandemic forced hard choices, which led to new opportunities and business models and a stronger business or organization, enabling those involved to advance social goals as well as economic ones. The growth of food hubs during the first year of the pandemic reflects not only their adaptive capacity as businesses but also their success as social enterprises advancing social values. The pandemic has catalyzed change that will have lasting impacts on local and regional food systems along with the people and communities they feed.





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## PEER-REVIEWED POLICY ANALYSIS

# Big data, information asymmetry, and food supply chain management for resilience

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## Abstract

The Biden Administration is reviewing supply chains as part of its response to recent supply chain failures during COVID-19, and anticipated disruptions associated with climate change. This policy analysis discusses supply chain management, that is, the monitoring and continual improvement of materials flow and information flow to better manage risk. We are in an era of proprietary big data and digitized applications to make sense of it. Healthy food systems require policy to address unequal access to food systems data and information that occurs between businesses as well as between private businesses and government. Managing risk to a nation's overall food system is an important government function that includes setting fair market rules and ensuring open information exchange in food supply chains. In this

way, our government ensures equitable food and market access as new technologies and disruptions arise. This paper reviews these concepts considering current policy actions of the Biden Administration.

## Keywords

Food Supply Chains, Information Asymmetry, Big Data, Regional Food, Policy, Market Competition, Risk, Food Flow, Digitization, National Security

## Introduction

The COVID-19 disruptions generated increased public awareness of the importance—and vulnerabilities—of supply chains across all sectors of the economy. In response, the Biden Administration

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released an executive order in February 2021 emphasizing the importance of “resilient, diverse, and secure supply chains” (Biden, 2021a, para. 2) and announcing the Administration’s intention to review and restore critical supply chain infrastructure in the interest of economic and national security. Supply chain managers use information on material and information flow within and between companies to optimize efficiency and profit. If our government is to instead encourage dual optimization of resilience and efficiency, policymakers need to create the conditions necessary for resilience.

In response to the Biden Administration directive, the U.S. Department of Agriculture (USDA) solicited public comment on food supply chain resilience from April to June 2021 and received more than 900 comments. The USDA created a supply chain team to work with similar teams in other agencies, such as the Department of Commerce, charged with information and communications technologies, and the Department of Transportation. The USDA team identified eight vulnerabilities and formed four action teams charged with developing a supply chain assessment over the course of a year, culminating in a report due out in February 2022. The White House also convened a supply chain task force, co-chaired by secretaries at the departments of Agriculture, Transportation, and Commerce. This task force is charged with taking immediate action in advance of the assessment, acting as a “situation room” for food and agriculture (Bailey, 2021).

Especially in the food and agricultural sector, COVID-19 has exposed structural weaknesses and vulnerabilities in supply and distribution (Hendrickson, 2020). “Information asymmetry”—in which a few businesses have access to information and use that information to maintain a competitive advantage—is one of those structural weaknesses. Asymmetry is exacerbated in this era of big data, where extremely large data sets are analyzed with algorithms to discover patterns and trends that can inform strategic action. Big data is defined by criteria such as value, where the information is used for making decisions; volume, where very large amounts of data are collected from a variety of sources; and velocity, where data is processed in real time (Chalmers & Barqueros-Munoz, 2021).

These data are collected by both the public and private sector. As computational capacity has increased, companies with capital have invested in both collecting more data and improving algorithms to make sense of them. At the same time, public resources to collect and make sense of these data for the public interest have not kept pace.

Information asymmetry hobbles the ability of governments and other actors to manage systemic risks holistically, further shifts power to capital, and leaves independent businesses especially vulnerable. Asymmetry creates an unhealthy power dynamic within supply chains where independent businesses are dominated by the larger and more vertically integrated operations that have greater ability to garner and manipulate systemwide information to maintain their market dominance. Such an approach to supply chain information created vulnerabilities that led to whole sector meltdowns in 2020 (Pullman & Wu, 2021). Equitable access to information is necessary for governments to set market rules that are more equitable, resilient, and responsive and for entrepreneurial businesses to create novel food supply chains. It also requires a public sector and policy commitment to support information access for independent businesses as a public good.

To serve the public interest in more resilient and equitable food supply chains, our government must have access to the necessary data and models to make sense of supply chains as they are currently configured, as well as a vision for resilience and benchmarks toward realizing that vision. Supply chain managers are responding to the COVID-19 disruption with the help of big data by upgrading, reconfiguring, and accelerating change in supply chains to attain business goals. How will our government respond over the long term to meet public goals?

Supply chain management focuses on three broad areas: materials flow, information flow, and risk mitigation. Managers monitor and facilitate the flow of materials using big data and modeling to identify and monitor vulnerabilities and ultimately to manage risk. They also identify strategic improvements to the supply chain that may improve overall system functioning. Public policymakers need supply chain analysis to make informed

decisions on *targeted public investment in structural improvements* to create resilience and ensure rapid recovery and continuity in national and regional food systems. Such a strategic investment will support competition in markets, but also include an optimum level of system redundancy to avoid increased risk of complete shutdowns in the face of a disturbance or shock. Such resilience is a matter of national interest.

## Background

Markets function to exchange. We typically think of the exchange in terms of goods and services, yet an underexamined item of exchange is information. Consider the variety of information exchanged at farmers markets. The USDA's "Know Your Farmer" campaign carried out during the Obama Administration emphasized customer-to-farmer information exchange, an important component of local food networks. Additionally, such direct markets create a means for information exchange between sellers, such as the going rate for goods and services. Termed "price discovery", farmers can readily see the prices for products at other farmers market stalls. Direct markets, while an important market for smaller farmers, do not necessarily provide stable and sufficient income on their own. Bauman and colleagues (2018) document the importance of small wholesale (intermediated) markets if midscale farmers are to make a living farming.

As farmers enter wholesale markets, obtaining and managing information about distribution and supply becomes more challenging and complex. If only some participants can access and manage this complexity, information asymmetry grows (Akerlof, 1970). This creates an imbalance of power and leaves market transactions vulnerable to failure. In extreme cases, what Harold Innes (1950) termed "monopolies of knowledge" take hold, in which political power is maintained by a few via the control of key communication technologies. More recently, Nobel economist Paul Romer, known for his support of technological innovation, raises questions about power and concentration in technology information markets, proposing a tax that increases with the size of the company, among other solutions to the imbalance of power

(Kasperkevic, 2021). Nost and Goldstein (2021) observe that digital technologies "are inherently entangled with the governance, politics and materialization of the digital" (p. 2).

Information asymmetries proliferate in today's era of big data. Businesses analyze consumer purchasing trends and manipulate wholesale distribution patterns to increase profits. Private companies have financialized and honed methods to scrape data from the internet and aggregate proprietary data from innumerable private-market transactions. The private sector has also developed proprietary algorithmic models and applications to organize public and private data and discover patterns of behavior that can improve profitability for businesses, at least for those that can afford to pay for data and information services. Vertically integrated supply chains have the capital to do this, hence the largest grocery retailers in the country are already using digital business ecosystems to monitor and manage transactions along the supply chain. This food systems transformation is occurring globally, not just in the U.S. (Mooney, 2018).

Moss and colleagues (2021) document the recent rise of digital business ecosystems, such as the information platforms used by Amazon. This novel business organizational structure uses information as the currency of exchange. Data analytics are supported by artificial intelligence and machine learning that drive user engagement. Digital transformation of the food system gives competitive advantage to businesses agile enough to participate (Ciruela-Lorenzo et al., 2020). Amazon's entry into the food sector, first through its acquisition of Whole Foods and now through regional distribution centers known as "dark stores," has spurred other large food retailers to follow suit and invest in distributed ledger systems, also known as blockchain technology. Independent food businesses and their supply chains are at a considerable disadvantage in these wholesale markets dominated by large grocery chains because they are left out of the information flow, have insufficient capital to develop their own proprietary digital business ecosystems, and lack the necessary coordination between strategic partners (Livingstone & Knezevic, 2020; Navickas & Gruzauskas, 2016).

For the grocery industry, distributed ledgers

are a means to share information on product movement through the supply chain between divisions of the parent company and with strategic supply chain partners. Research and development of private-commission blockchains are funded primarily by large corporate businesses such as IBM and Maerk (Jutka, 2020; Krzyzanowski, 2019), so that the systems are secure, stable, and fast (Jutka, 2020). By increasing transparency between all actors in a supply chain, distributed ledgers are already used to improve food safety (Pearson et al., 2019). Blockchain also holds the promise to make supply chains more traceable, transparent, and sustainable by integrating sustainability metrics into the system (Chalmeta & Barqueros-Munoz, 2021; Jutka, 2020). However, there are several issues that need to be resolved, both technological and in the realm of governance at the global scale, if distributed ledgers are to fulfill their promise. These include data and architecture standards, market regulations, privacy and data protection, and scalability (Jutka, 2020; Pearson et al., 2019).

Due to the explosion of computing services and privatized data, as well as diminished funding for government services, the ability of the federal government to monitor and manage the market data necessary to enforce rules has waned at a time when there is a greater demand for information services (Schmitt et al., 2020). Historically, the USDA has collected, analyzed, and applied data to rebalance and shape markets for food to ensure they are fair and competitive, regardless of scale (Baker, 2019; Gilbert, 2015; Tropp, 2018). The agency had proactively collected agricultural statistics since 1862 and implemented long-range plans to upgrade and respond to technology changes in 1957 and 1982 to create what is now known as the National Agricultural Statistics Service (NASS). However, starting in the 1980s, multiple rounds of budget cuts reduced the number of NASS staff precipitously. Market reports were eliminated or were offered yearly or quarterly instead of monthly, sample sizes were reduced, and programs were merged to meet reduced budget targets. Despite the meteoric rise of computation and information services between 1987 and 2007, NASS computation staff numbered 86 in 1987 and only 132 in 2007 (Allen, 2008). Most recently, the

USDA's Economic Research Service (ERS) was targeted for downsizing. Established as an original service of USDA to regulate speculators who were manipulating commodity markets, the ERS provides lawmakers with scientific analysis on markets (Young & McMahon, 2020). In 2019, the Trump Administration moved the ERS offices from Washington, D.C., to Kansas City, Missouri. Rather than uproot their lives, nearly two thirds of the ERS staff chose early retirement or resigned their positions. The offices of the USDA's National Institute of Food and Agriculture (NIFA) were also forced to move to Kansas City, resulting in a loss of many employees and capacity, and diminishing NIFA's ability to support researchers nationwide in their efforts to collect and apply pertinent data.

Over its history, the USDA has intervened in many food supply chains to ensure competitive markets. The Federal Milk Marketing Orders are an early example of such an intervention, established in 1937 under the Agricultural Marketing Agreement Act. Price discovery is one function of these orders. Currently, the USDA monitors the price that processors pay for fluid milk and the rates at which they charge wholesale buyers for fluid milk, barrel cheese, "soft products" such as ice cream, and dry milk powder. The USDA then publicly reports a minimum pay price for those products to reduce information asymmetry among farmers, processors, and retailers. The agency collects data for fruit and vegetable marketing orders as well, but as the produce industry has concentrated, the larger companies and their grower associations collect and analyze their own data. The agency also tracks prices and distribution costs of produce sold at 13 multitenant wholesale markets across the country (USDA Agricultural Marketing Service, 2021), although today much of the trade in fruits and vegetables is conducted outside these spot markets through private distribution centers. Trading outside public markets and through privatized supply chains is termed "market by-pass" and this market data is then proprietary.

The USDA's system of price discovery for the dairy industry and terminal markets for fruits and vegetables use but a fraction of the government data collected to monitor and shape the market-

place. Publicly available data through national surveys and censuses such as the U.S. Census also inform public and private policy-making decisions. The Commodity Flow Survey is an important data source for supply chain managers and transportation planners alike. The Commodity Flow Survey, a joint project between the Bureau of the Census, U.S. Department of Commerce, and the Bureau of Transportation Statistics, Research, and Innovative Technology Administration, provides regular snapshots of goods movement across the U.S. by volume. These data and analyses are used by supply chain managers to understand product flow and are routinely supplemented with proprietary data that managers collect or purchase. Initiated in 1993, this survey is conducted just every five years and takes years to release for public use. For example, the 2017 commodity flow data reports were released in February 2021. The Federal Highway Administration and the Bureau of Transportation Statistics then partner to provide the Freight Analysis Framework, which integrates ancillary data, such as that collected by the USDA NASS, to capture goods movement in agriculture, food, and other sectors. The most recent framework uses 2017 data and was released in March 2021. As the computing power to make sense of large data sets has increased, private-sector demand for public data has only added pressure on public agencies to provide it. At the same time, public access to many of the modeling applications to make sense of big data is limited to those able to pay for a use license which can run US\$50,000 or more for a modest project.

### **Supply Chain Management for Food Systems**

Supply chain management is a relatively new field, rising to prominence in the 1990s. It stresses the monitoring of material and information flow within and between companies to inform decision-makers to improve systems and reduce risk. For businesses, this means managers can meet the business goals of efficiency and profitability. For governments, this could mean that public servants meet public goals such as equitable access to food and markets, and supply chain resilience during disruptions.

An early example of the use of supply chain management in the food sector was developed in 1992 by a group of grocery industry leaders called the Efficient Consumer Response Working Group. This group pioneered the concept of “continuous replenishment,” made possible by improving a flow of information along the supply chain. Grocers forward purchase transaction data to food manufacturers so that manufacturers can respond “just-in-time,” reducing costs, especially for storage (Lummus & Vorkurka, 1999). Very large firms such as Walmart may now include such supply chain management functions in-house, while many firms opt to outsource all or part of supply chain management through third party logistics (3PL) providers.

As a general business strategy, supply chain management is a critical element for managing risk and continually improving organizational processes to achieve efficiency and profitability goals. Supply chain management supports businesses in anticipating and responding to disruption, going beyond meeting immediate needs to build on existing relationships and expertise and stimulating collaboration. This management function looks for opportunities to upgrade, reconfigure, and accelerate change. They “figure it out and get it done,” as the supply chain manager for New Jersey ports, Anne Strauss-Wieder, summarized (National Academies of Sciences, Engineering and Medicine, Transportation Research Board, 2020).

While our government need not be in the business of managing food supply chains, since businesses serve that function, government must monitor and ensure competitive markets, especially in wholesale markets, if we are to attain food system resilience. At this writing, there is no equivalent to supply chain monitoring and supporting logistics analytics to identify ways that our food movements and markets can become more equitable and resilient, even though food and agriculture are vital to our national security. Proprietary data are expensive to acquire, if available at all, to planners working in the public interest with public goals in mind. Improving access to public and proprietary data has the potential to improve policy development. However, access to data alone is not enough. There is a need for access to models to sort through big

data to find the patterns that tell the story of how food is moving, how information is moving, and to anticipate and manage systemic risks.

This high-level management function is not readily available to small businesses either, including nonprofit organizations, unless they have the ability to pay or can find a company willing to work pro bono. The American Logistics Aid Network (ALAN) is an effort to provide supply chain management services to communities experiencing a disaster. Yet, as a philanthropic organization, it is unable to meet the extent of need, nor does it address the fundamental issue: *structural inequity in market access and information*. Furthermore, researchers working on market and food access in the public interest lack ready access to proprietary data and applications because they lack the means to purchase them. Sometimes, a public researcher will attempt to work with publicly available data and develop their own model to answer questions of importance to public policy.

A case in point is the development of a food flow model at the University of Illinois (Konar et al., 2017; Lin et al., 2014; Lin et al., 2019). The research team developed a model to find patterns in publicly available commodity flow and freight analysis data, showing how volumes of food move around within the U.S. and between counties. This study on food flow highlights why data and modeling applications are important public functions for agriculture and food. The initial work was made possible with a grant from the National Science Foundation, and refinements-in-progress are currently funded by the USDA.

The private sector already has access to volume and value models to do this work and has access to much more transaction data through its supply chain relationships. Apart from work conducted at some government planning departments, analyzing supply management data is wholly privatized at the sector level by third-party logistics firms and in-house departments. Some government transportation planners pay to use software like IMPLAN or TREDIS to analyze transportation investment impacts, as do some applied economists, or barter for information or database services. Yet for the most part, in-house logistics units and third-party logistics providers use these tools

to monitor the flow of food and other commodities that make up their supply chains. The cost to use IMPLAN, especially if proprietary data is required, is out of reach for most of the public sector.

These programs themselves are illustrative of the challenges faced in developing long-term strategies to mitigate information asymmetry. IMPLAN began in the early 1970s as a federal information program for the U.S. Forest Service, and was privatized in 1985 (IMPLAN, n.d.). TREDIS was developed with private investment, and it uses IMPLAN for some of its functionality (TREDIS, n.d.). TREDIS is also in partnership with IHS (Information Handling Services) Markit, a private company that has worked in this field since 1967. TREDIS has acquired 120 smaller information services firms since 1997 and serves as an example of the concentration of information services (IHS Markit, n.d.). For considerable additional cost, these companies offer add-ons that connect to privately owned data.

### **Policy on the Horizon**

Managing a nation's food system is an important government function that includes setting fair market rules, ensuring open information exchange, and managing risk in food supply chains. In this way, our government ensures equitable food and market access and improves system resilience. Improving information flow to mitigate information asymmetry is a high-leverage strategy for system transformation since information is used to monitor market access and inform risk-management strategies. Information flow to improve supply chain transparency requires affordable digital tools, access to data, and rules that both protect data and ensure data portability. President Biden's two executive orders (February 2021 on supply chains and July 2021 on competition) indicate that the Administration takes these responsibilities seriously.

Just as private businesses optimize material and information flows within their companies and between trading partners, there is a need for similar work in the public sector to optimize food system resilience. If there had been a federal agency charged with resilience analytics for the food supply network during COVID-19, understanding the



trade-offs between efficiency and resilience may have resulted in policies to support resilience that would have muted the disruption and avoided cascading systems failures (Golan, et al., 2020; Hynes, et al., 2020).

Instead, there was chaos. The emergency food network that sprang into action in response to the disruption from the COVID-19 pandemic was in many ways flying blind. Loose networks of private nonprofit organizations and state and federal agencies made a valiant effort to undergird the national commercial food system as processors shut down, farmers were left with an oversupply, people lost employment, and schools and restaurants closed. ALAN donated services to some organizations in the emergency food network (ALAN, n.d.), but not to the full complement of national, state, and local practitioners, nor to independent small businesses in need of logistical support for routine operations well before the disruptions caused by the pandemic. According to practitioners in the field, the lack of adequate supply chain management and logistics support raised concerns about how their efforts might not only fail to meet need but cause additional disruption.

For example, much of the food donated for hunger relief also required refrigeration. The need for refrigeration made it difficult for many food banks and their food pantry clients to accept the donations. This need was present before COVID-19 and was much more pressing as supply chains were disrupted and the need for food aid increased (J. Bader, personal interview, April 17, 2020; Hege et al., 2021). Yet simply adding refrigeration capacity to charitable food outlets is not a transformational food system change, because it contributes to system lock-in and dependence on charitable food efforts that rely on volunteer labor and philanthropic support. They do not build wealth.

In this instance, government could invest in business-to-business wholesale cold storage for increased access to markets for regional food producers as a systems transformation strategy. Such an approach supports job creation, local food production, entrepreneurial food businesses, and wealth creation. In cities where these facilities already exist, as documented in Toronto during the pandemic (Dale & Sharma, 2021), food supply

disruptions were muted for grocery stores. Such an investment in multi-tenant cold storage infrastructure could be a game-changer for the food system by improving logistics (Lengnick et al., 2015, Miller et al., 2016).

Multi-tenant cold warehousing that creates space for small business transactions is common outside the United States. World Union of Wholesale Markets has 217 members in over 40 countries and five continents. Public-private partnerships are the most common governance arrangement, and they share the primary objective of organizing the movement of fresh products to market to reduce waste and realize energy savings by organizing truck movements (Escoffier, n.d.). The French Federation of Wholesale Markets serves 22 markets in France alone and places a high priority on local commerce and regional food production (Rungis, n.d.). These public-private markets reshape market structure to give small and entrepreneurial food businesses access to wholesale markets. Investing in “regional food enterprise centers” is one action currently under consideration at USDA (Bailey, 2021, quote per author’s notes).

It is in the public interest to make supply chain management and logistics support readily available to independent food businesses. Food entrepreneurs function at all points of the supply chain and form the backbone of communities, both urban and rural. They respond to changing local needs and conditions, build economic capacity at the community level, tap into innovation to serve those needs, and give our food system accountability and resilience. They generate wealth. However, few businesses at this scale have access to supply chain data and applications or the capacity to manage them, even though they could benefit from this information. Investment in information infrastructure such as internet access and open-source and/or affordable digital tools is needed. Information infrastructure targeted for independent businesses will reduce information asymmetry in supply chains.

Public researchers are currently mapping existing national food networks to identify key systems nodes at the national and regional level for perishable foods; for instance, the ICICLE project, led by The Ohio State University (OSU, n.d.), is moving

forward the Konar Lab's work on food flow mentioned earlier. Markets functioning as primary nodes for food flow, such as Omaha, Chicago, Los Angeles, and Atlanta, need to collaborate with healthy secondary and tertiary nodes in their regions so that food efficiently reaches what USDA terms "Frontier and Remote Areas," as well as underserved urban neighborhoods. This research aims to provide public planners with the maps they need to identify areas lacking in food flow as well as areas that are particularly vulnerable to disruption (Center for Integrated Agricultural Systems, 2020).

A national system of interconnected regional and local networks that improve food and information flow to serve communities within and outside major metropolitan areas will improve market and food access for all. Each region in the U.S. is likely to have a unique relationship between food production and consumption that has been shaped by growing conditions, transportation routes, business relationships, proximity to primary network nodes, and access to capital. Empirical findings on food flow can be used to document COVID-19's impacts across the supply chain, with emphasis on regional-scale contributions to systems resilience (Center for Rural Engagement, 2020).

When the Biden Administration announced its intention to review critical supply chains for national security, supply chain managers were ready with a report on what this effort could look like. Consumer Brands, a consortium of businesses that manufacture shelf-stable products, along with the Council of Supply Chain Managers and academics at Iowa State University, released a report calling for a Federal Office of Supply Chain (Adderton, n.d.). Throughout the report, they called for an integrated system that links government and business to develop policies that meet business and public goals. However, elements critical to a robust and equitable supply structure were minimized. They advocate for policies that address urban freight logistics, but not rural logistics. They highlight national networks, but not regional or local networks. They promote digitization and innovation in technology, process, and service, but not in the context of independent businesses. They mention the importance of protecting data security,

privacy, and proprietary data interests, but skirt issues such as access to digital tools, supply chain transparency, and data protection and portability. These missing issues are important for public efforts to fairly serve businesses at multiple scales and types of organization. They require us to address scale, density, equity, and agency in the food system. Otherwise, we risk further widening the digital divide in the food sector (Sheinfeld, 2021) and worsening information asymmetry.

Meanwhile, the National Grocers Association (2021) released a report describing market negotiation asymmetries associated with access to information and called for a check on supply chain concentration. The grocers group contends that the pandemic has further exacerbated market inequality and that their members—independent grocers across the U.S.—are disadvantaged in this hostile market environment. They provided evidence of buyer power and economic discrimination that threaten independent businesses and called for investigations and hearings, oversight, legislation, agency action, and enforcement. Asymmetrical information is at the heart of wholesale buyer power along the supply chain. Supply chain transparency and equitable information access is necessary to rebalance the system.

At the other end of the food supply chain, delegates to the 2021 National Farmers Union convention in March continued their call for antitrust legislation. Market reform is a core issue for this organization representing nearly 200,000 farmers across the U.S. In his address to the delegation, newly appointed Secretary of Agriculture Tom Vilsack reported that his staff were already investigating issues of concentration and antitrust. He committed to "reforming markets so that farmers can farm" (Vilsack, 2021). For such "new, more, better, and fairer" markets to exist, improved public access to information for all participants in the supply chain is mandatory.

### **Supply Chain Management in the Public Interest**


This policy analysis discusses how supply chain management in the public interest—the monitoring of food and information flows and continual systems improvement—can support strategic im-

provements in the food system to reduce risks and cascading failures such as those experienced during COVID-19. Public planners can monitor supply chains to acquire insight into how food is currently moving through the system, how information is flowing, and how governments may anticipate and manage risk to improve food system resilience. Data and information on food movements is necessary for *targeted public investment in structural improvements* to create resilience and ensure rapid recovery and continuity in national and regional food systems. Such strategic investment will support competition in markets, but also include an optimum level of system redundancy to improve equity in the system and reduce risks from disturbance or shocks. The Biden Administration has made it clear that this is a “once-in-a-generation” (Gambino, 2021, para. 1) opportunity to invest in infrastructure, “to rebuild the backbone of America” (para. 2).

A next step in public-oriented supply chain management is to democratize data and models. Reinvestment in public data collection and analysis is necessary so that policy-makers have the information they need to make markets competitive again. Updating market rules so that they better navigate the technological advances of the last 50 years and those on the horizon is another necessary step. New government rules to support competitive markets must be accompanied by monitoring and robust enforcement. Competitive markets are central to food system resilience because they add redundancy to the food system through self-organization. Markets are now shaped by big data analytics, so we need our governments to move to the front, take hold of these new technologies, and shape food markets for the 21<sup>st</sup> century.

President Biden’s July 2021 Executive Order on Promoting Competition in the American Econ-

omy is a sign that our government is poised to move forward in the interest of independent small businesses, workers, and consumers with a “whole-of-government” approach. It contains 72 specific actions to be taken by 14 federal agencies in the coming year. The USDA is charged with developing a plan to promote competition, support value-added agriculture and distribution systems, improve price discovery and access to retail markets, develop standards and transparency in the marketplace, and enhance the marketplace for small food-processing businesses. Similar language directs the Department of the Treasury to improve market access for independent beer, wine, and spirits producers (Biden, 2021b). Defining and measuring competitive capacity at the national and regional scales is core to this work (Green, 2021).

For our regional food economies to thrive and add resilience to our food system, we need information infrastructure that reduces information asymmetry in order to improve supply chain transparency, protect data, ensure affordable access to data and digital tools, and require data portability. All businesses in a supply chain need access to the information in that chain, not only those able to pay for it. As President Biden’s executive orders remind us, it is a matter of national prosperity and security for everyone. 

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# Implementing sustainable food forests: Extracting success factors through a cross-case comparison

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## Abstract

Food forests are multistrata ecosystems that provide healthy food, livelihood opportunities, as well as social-cultural and environmental services. With these features, food forests address several problems industrial food systems cause. While the overall number of food forests is continuously increasing worldwide, the rate of uptake is still low. This study reconstructs in detail how different types of food forests ( $n=7$ ) were realized, mostly in Europe, with a focus on organization and management. Findings confirm and add to previous

studies indicating that the successful implementation of food forests depends on long-term land access, sufficient start-up funds, and adequate farming and entrepreneurial know-how, among other factors. While these are not unique factors compared to other farm and food businesses, sustainable food forests face particular obstacles to secure them. This study offers guidance to food entrepreneurs, public officials, and activists on how to successfully implement food forests to realize their full sustainability potential.

## Keywords

Food Forests, Forest Gardens, Food Economy, Food Entrepreneurship, Implementation Paths, Case Studies

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## Introduction

The conventional globalized food system causes negative externalities worldwide (Garnett, 2011; Rockström et al., 2020; Tilman & Clark, 2014). Considering that climate tipping points are in reach (Lenton et al., 2019), sustainable food system solutions are urgently needed. Food forests are multi-functional ecosystems that might offer such a solution, or at least part of it, through a variety of services, including food provision, livelihoods, and environmental services, among others (Albrecht & Wiek, 2021). We define a food forest as a coherent, multistrata space with a majority of edible perennial plants, a minimum size of 1 acre (~0.5 ha), and 10% canopy cover to provide forest-like ecosystem services and significant food production. We focus here on food forests as business or nonprofit endeavors that go beyond self-sufficiency. We define food forest managers as entrepreneurs, even if they often act through alternative markets and organizational modes, as they offer products or services to the public and generate an income from their activities.

Food forests have been developed and cared for by Indigenous people around the world for thousands of years (Ford & Nigh, 2009; Kumar & Nair, 2004). The number of 'modern' food forests worldwide has been steadily increasing since the 2000s, yet, the overall number is still small and the rate of uptake is low (Albrecht & Wiek, 2021). This is due, in part, to a conflict of economic paradigms: food forests, particularly those with ambitious sustainability goals, are oriented toward long-term and optimally balanced co-benefits, while mainstream business culture pursues short-term profit maximization, which creates obstacles for the implementation of food forests under current economic conditions. A good share of food forests therefore have been created as nonprofit organizations, private side businesses, or public-private partnerships (Albrecht & Wiek, 2021), including many (community) food forests on public urban sites (Konijnendijk & Park, 2020; Vannozzi Brito & Borelli, 2020). However, making them economically viable by generating sufficient income for maintenance and livelihoods often conflicts with the interest of public lease givers or community-oriented initiators, even if no profit is generated (Bukowski &

Munsell, 2018). These food forests also often struggle with insufficient funding and over-reliance on volunteers. In addition to these barriers to general uptake, it seems reasonable to assume that the sustainability performance of food forests is also influenced by the specifics of the implementation process (available funding, practical farming know-how, etc.). While there is some empirical evidence that these challenges hamper the wider uptake of food forests in general (Belcher et al., 2005; Björklund et al., 2019) and the adoption of sustainable practices in particular (Albrecht & Wiek, 2021), there is a lack of in-depth understanding of the most relevant factors of implementation success over time.

This gap is not surprising considering the nascent state of academic research on food forests. The majority of recent studies describe the social-cultural and environmental benefits of food forests, often through single case studies (Park & Higgs, 2018; Riolo, 2019; Schafer et al., 2019; Wartman et al., 2018); offer insights on basic features, services, and sustainability of food forests through comparative empirical studies (Albrecht & Wiek, 2021); or provide practical guidance on creating food forests (Bukowski & Munsell, 2018; Remiarz, 2017). A few studies focused explicitly on success factors of implementation. A study on forest gardens in Southeast Asia and South America identified as success factors diversifying income, integrating other farming systems, choosing crops that mature within 5-10 years and are commercially valuable, as well as possessing substantial environmental knowledge and securing land tenure (Belcher et al., 2005). A recent study of 12 food forests in Sweden revealed that concepts and designs that match location, intended services, and beneficiaries are critical for developing successful food forests (Björklund et al., 2019). Furthermore, healthy soil properties, water availability, wildlife pressure, professional designs, appropriate equipment, good management practices (e.g., sufficient working hours, short distance between site and residence), and sufficiently large size (for food production) were identified as success factors, too.

An in-depth understanding of the implementation paths that food forests pursue, however, is missing. The present study attempts to bridge this



gap by extracting factors of implementation success from a comparative study of select cases. We reconstructed the implementation paths of seven diverse food forests, mostly in Europe, with a particular focus on organization and management, based on document analysis, interviews and site visits (data were collected in 2018). The sample was composed to reflect primarily diversity in main services provided and maturity or age of the food forest.

The findings provide guidance for food entrepreneurs, public officials, and activists on how to implement sustainable food forests (or to support implementation). Therefore, we also describe common barriers that should be anticipated and planned for.

## Research Design

This study uses a framework for analyzing the process and outcomes of sustainability solutions in order to identify general factors of success (Forrest & Wiek, 2014). This framework has been applied to community development and water governance (Forrest et al., 2020; Forrest & Wiek, 2015), and seems most applicable to sustainability solutions that are being developed and implemented over long periods of time (10 or more years), including food forests.

We selected seven food forests from a large sample of cases compiled in an inventory ( $n=209$ ) and from a subsample of cases we conducted detailed case studies on ( $n=14$ ) (Albrecht & Wiek, 2021). Of the seven selected food forests, five are in Europe (two in Germany, two in the Netherlands, and one in Portugal), one is in South America (Brazil), and one is in North America (USA). We selected the seven cases based on the following criteria: first, the cases represent a broad diversity of main service and maturity or age

(Table 1); and second, the cases are well documented through primary or secondary data. The main services consist of the common activities carried out at each food forest, with implications for organization and management (Albrecht & Wiek, 2021). By including different age groups, we provide insights on the different practices of early pioneers versus late adopters. The Brazilian case was selected to include a mature case (over 10 years) with a focus on professional food production, which is rare in Europe and the U.S. Data on six cases is based on semistructured interviews and site visits that focused on the organization and management over the course of the implementation process (data collected in 2018). The case study on the Beacon Food Forest is based on extensive recent research by Bukowski and Munsell (2018), which provides comparable data and allows the inclusion of a successful and renowned community-based case from the U.S. The other socio-cultural cases focus on regenerative and/or educational services. By design, all food forests provide various environmental services; however, some stand out through their eco-centric design and management (e.g., limited visitor access, minimal management), such as Foodforest Ketelbroek.

We reconstructed the implementation paths of the selected seven food forests up to stable management based on primary data (observations, interviews) as well as secondary data (reports, website, etc.). We structured the implementation into a number of phases and tracked key actions, actors, and outcomes, as well as barriers and coping strategies, using standardized analytical categories developed by Forrest and Wiek (2014). For each site, we created a visual pathway and an implementation narrative.

Finally, we compared the implementation

**Table 1. Overview of Food Forests Selected for this Study**

Main Services	Young Cases <5 years	Established Cases 5–10 years	Mature Cases >10 years
Food Production Services	Den Food Bosch (NL)	Foodforest Ketelsbroek (NL)	Fazenda Ouro Fino (BRA)
Social-Cultural Services	Keela Yoga Farm (PRT)	Mienbacher Waldgarten (GER), Beacon Food Forest (USA)	Essgarten (GER)
Environmental Services		Foodforest Ketelsbroek (NL)	

paths systematically in order to generalize insights on success factors and barriers across cases, differentiated into behavioral, infrastructure, institutional, and economic factors. We pragmatically differentiate (partial) *success* from (partial) *failure* of the food forest using a set of sustainability criteria (see Table 2), developed in prior research (Albrecht & Wiek, 2021) based on literature on sustainability (Gibson, 2006), agroforestry and food forests (Jose, 2009; Park & Higgs, 2018), as well as expert interviews. If one or more criteria were not met at all (scoring 0), we considered the food forest to have partially failed (regarding its overall sustainability ambition) and explored the reasons for this.

### An Exemplary Implementation Path:

#### *Den Food Bosch*, the Netherlands

Den Food Bosch is a showcase site for regenerative food production that has operated since 2017 on 2.5 acres (1 ha) near the city of s'Hertogen-

bosch, colloquially known as “Den Bosch” (population about 150,000). Its intricate food forest design (Figure 1), mostly inspired by permaculture and syntropic farming, allows harvesting on all layers (Figure 2). Produce is sold weekly on-site. Additional sales channels and processing options are currently under development.

Den Food Bosch is governed by a foundation that contracts food forest managers who are responsible for generating their income. Students from HAS University of Applied Sciences (which focuses on agricultural and food technologies, with about 3,500 students) in s'Hertogenbosch occasionally conduct research and volunteer on-site. The local water authority owns the land.

Considering its young age, Den Food Bosch already performs well with an overall average sustainability score of 1.4 out of 2 (Table 2). However, while it performs strongly on social and ecological criteria, it shows some weaknesses in the economic

**Table 2. Sustainability Performance of Den Food Bosch in 2018 (2=fully met, 1=somewhat met, 0=not met) Applying the Multidimensional Set of Criteria Developed in Albrecht & Wiek (2021)**

	Criterion	Qualitative Assessment	Score
Socio-cultural Criteria	Meaningful, safe employment and activities with social purpose	Pioneers in alternative biodiverse farming; high stress of start-up with intensive production and without financial security	1
	Contribution to community wellbeing	Regional, seasonal, fresh and organic food supply at affordable prices	2
	Capacity-building	Volunteer events for experiential learning; tours to familiarize neighborhood with food forests; consultation services	2
Environment Criteria	Water conservation and soil formation	Close to waterways for stormwater management; developing water-holding capacity Mulch, organic fertilizer, and chop and drop management with biomass plants	2
	Cool microclimate	Young site; high layer diversity	1
	High biodiversity	High species diversity and cultivation of rare varieties; connection to green corridors	2
Economic Criteria	Economic viability	Insufficient income from early product sales and consultation for two full-time managers; lack of established sales channels or processing options (leftover produce); break-even estimated after 3-4 years, high profitability predicted, but no financial security for the first years	0
	Formalized organization	Foundation; evidence-based site plan; monitoring yield and environmental parameters	2
	Shared ownership and decision making	Foundation with a board for long-term decision-making; land owned by water authorities and leased by foundation (insecure tenure, though)	1
Overall Score Average			1.4

**Figure 1. The Trellis at Den Food Bosch Runs in a Semicircle Suncatch****Figure 2. Den Food Bosch in 2018, Nine Months After Planting on Seven Different Layers**

performance, especially regarding overall economic viability.

How did Den Food Bosch reach this point? What were major actions and outcomes? Who was involved? What were barriers and how were they overcome? Below, the implementation path of Den Food Bosch is described and visualized (Figure 3).

### *Initialization Phase*

Four undergraduate students of agriculture at the HAS University of Applied Sciences started discussing food production alternatives (beyond the standard agriculture curriculum) in 2015. In fall 2016, the students organized a kick-off meeting and other events (movie nights, gardening work-days) on a potential food forest project.

### *Planning Phase*

The students then organized additional workshops, field trips and info events, partly supported by renowned food forest experts and the university, in order to draft an initial food forest plan. As part of this effort, the core group networked and identified four potential sites for the food forest by early 2017. They eventually leased 2.5 acres (1 ha) of land in a small municipality near s'Hertogenbosch,



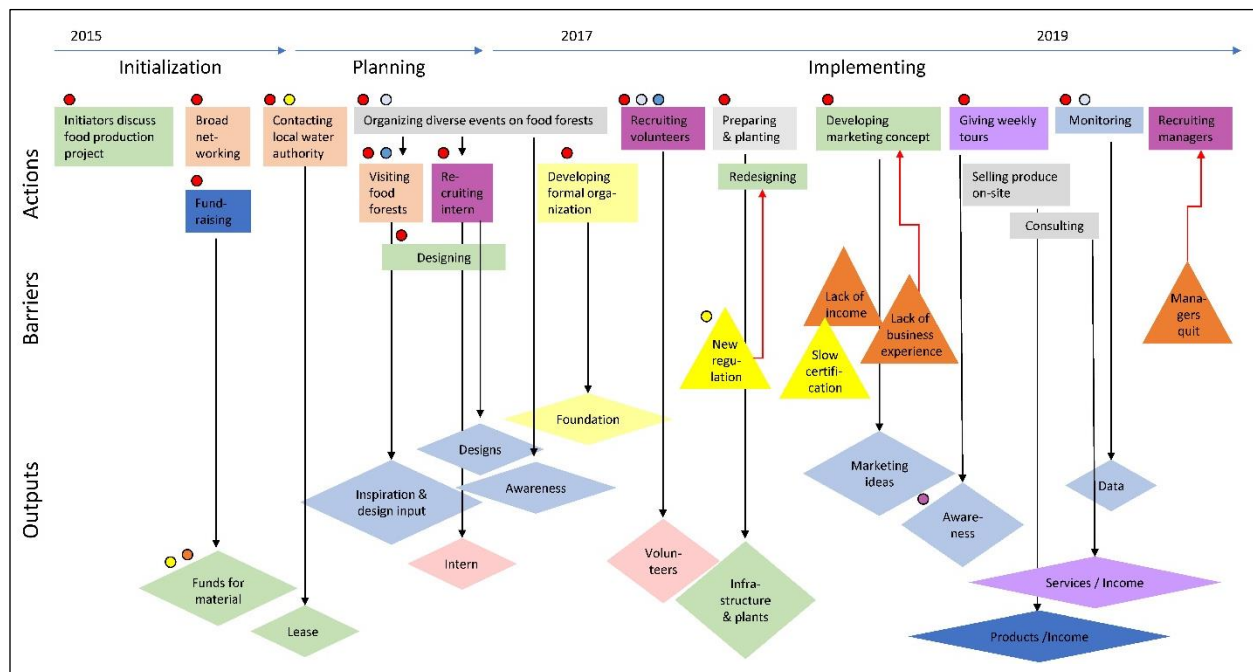
owned by the local water authority. In parallel, they raised funds for materials (e.g., plants, infrastructure) from the local municipality and the AgriFood Capital Foundation. In late 2017, a forestry student with practical experience in syntropic farming completed the site design for the food forest in an undergraduate thesis.

### Main Implementation Phase

The core group formed the Den Food Bosch foundation with a board advising on strategic decisions, and two of the former students started working as managers handling the daily operations of the food forest. They recruited volunteers for support, mostly from the university, and implemented the site plan between fall 2017 and spring 2018, including fence construction, mulching, and planting.

The two managers offered weekly tours to familiarize neighbors and guests with the project and to market the produce. At this early stage, the income of the managers was mostly generated through sales of annual vegetables and small consultation contracts, while additional revenue streams (e.g., produce processing, selling at farmers market) did not yet exist. The business plan, however, remained underdeveloped, and the managers faced financial insecurity, in part due to the small local consumer base. In late 2019, after 2 years of operating Den Food Bosch, the two managers quit and returned to Germany (where they started a regenerative agriculture project on a 124-acre [50-ha] site in the Pfalz). Six months later, by mid-2020, the Den Food Bosch foundation recruited two new site managers.

**Figure 3. Implementation Path of Den Food Bosch, 2015–2019**



### Legend

Actions	Actor Type	Output Type	Barrier Type
Networking	Core Group	Human resources	Infrastructure
Mobilizing	Community Members	Services	Institutional
Planning	NGOs	Infrastructure	Behavioral
Organizing	Government	Institutional	Economic
Publicizing	Higher Education	Knowledge	
Fundraising	Business	Products	
Executing			

### Main Factors of Success

A variety of factors enabled the implementation of Den Food Bosch. In the Netherlands, food forests are fairly well known and even legally defined for regulatory authorities. In 2018, stakeholders from government agencies, NGOs, and practitioners signed a memorandum entitled “Green Deal Food Forests” that financially supports the planning and implementation of food forests. Also, the local water authority was interested in research on water-holding capacity, and thus agreed to a favorable leasing contract. In summary, Den Food Bosch had favorable institutional conditions for implementation. In addition, the core group was made up of students/ graduates from an agriculture degree program at a nearby university who had some practical experience in food forestry. This allowed for leveraging agricultural expertise (e.g., for developing the site plan and the planting), contacting food forest experts, mobilizing volunteers, accessing meeting and event spaces, and obtaining resources for planning, monitoring, and planting. Finally, the two managers dedicated a great deal of time and hard work to the project, without adequate compensation. One reason was their motivation to gain in-depth food forest experience applicable beyond Den Food Bosch (which they now leverage in their new project in the Pfalz).

### Main Barriers

While Den Food Bosch was quite successfully implemented, with a fully developed food forest design in place and a good sustainability performance (Table 2), there are factors that hindered its progress. Both business and financing plans were under-developed, leading to a lack of sufficient income for the managers. In addition, the team encountered regulatory barriers. During the planting process, local waterway

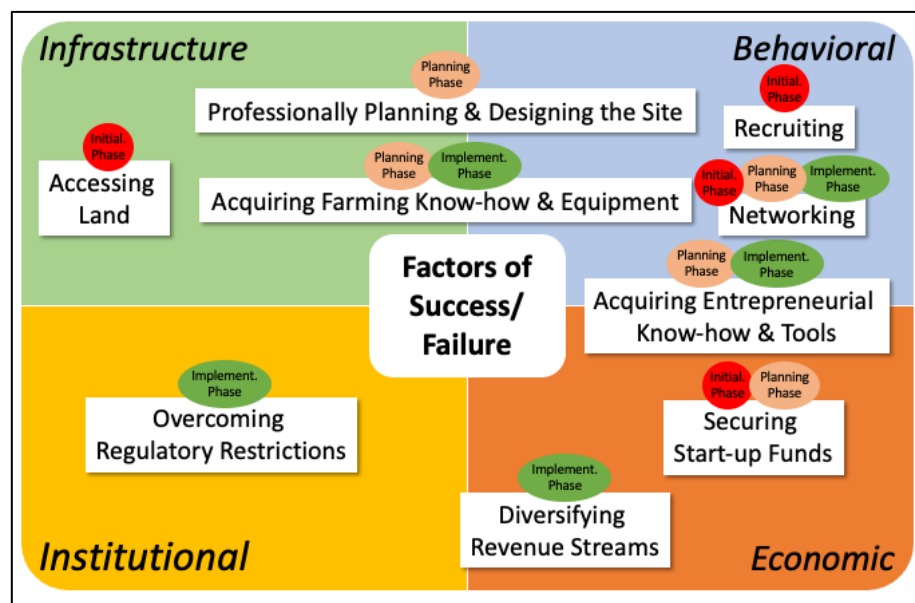
regulations changed. This required adapting the design (to increase the distance to the waterways) and accommodating management changes by the local water authority. Furthermore, pursuing organic certification was put on hold as the certification process was judged to be too time-consuming. However, organic certification is required for sales at the organic market, which would have yielded higher profit margins. When the two managers, who had been instrumental in planning and implementing the food forest, left, Den Food Bosch lost a lot of organizational memory about site design and management.

### Success Factors and Barriers of Food Forest Implementation

The reconstructed seven food forest implementation paths (similar to the example of Den Food Bosch presented in the previous section) indicate specific success factors and barriers related to organization and management for each food forest (Table 3).

From this base, we derive a set of general success factors and barriers, differentiated into behavioral, infrastructure, institutional, and economic factors (Figure 4). Despite context-specific features of each case, all cases display some of these general factors that influence their sustainability perfor-

**Figure 4. Factors of Success When Implementing Food Forests**



**Table 3. Main Success Factors and Barriers of Implementing Food Forests**

Name, Location, Ownership	Start	Main Functions	Size	Success Factors	Barriers
<b>Essgarten</b> Germany, metro-hinterland Private	1990	Recreation, Education (Self-sufficiency)	6.2 ac 2.5 ha	<ul style="list-style-type: none"> <li>• Motivation related to healthy food and entrepreneurial attitude (experimental, creative, outgoing, entertaining, caring)</li> <li>• Land access (affordable land)</li> <li>• Equivalent to start-up funds (independent income, low costs, hobby)</li> <li>• Professional design advice (landscape architect and permaculture trainer)</li> <li>• Farming know-how (gardener; permaculture trainer for seminars)</li> <li>• Entrepreneurial know-how (experience gastronomy, orangery for events)</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of expertise on specialty plants</li> <li>• Challenges with managing volunteers</li> <li>• Regulatory barriers (gastronomy certificate)</li> </ul>
<b>Fazenda Ouro Fino</b> Brazil, rural Private	1993	Food Production, Education (Self-sufficiency)	62 ac 25 ha	<ul style="list-style-type: none"> <li>• Motivation related to healthy food and self-sufficiency</li> <li>• Professional planning (with pilot)</li> <li>• Farming and entrepreneurial know-how (agronomy, syntropic farming)</li> <li>• Diverse revenue (high-value cash crops and services)</li> <li>• Equipment (for food processing)</li> </ul>	<ul style="list-style-type: none"> <li>• Degraded land (former pasture)</li> <li>• Lack of staff (harvesting)</li> <li>• Lack of practical farming know-how</li> </ul>
<b>Foodforest Ketelsbroek</b> Netherlands, urban hinterland, Private	2009	Food Production, Education	5.9 ac 2.4 ha	<ul style="list-style-type: none"> <li>• Motivation related to previous food entrepreneurship experience; Network</li> <li>• Land access (affordable land)</li> <li>• Equivalent to start-up funds (independent income, low costs, earthwork funds)</li> <li>• Farming know-how (agricultural consultant, gardener)</li> <li>• Diverse revenue (education, consultancy, food), supportive customers, local demand (co-harvesting food businesses)</li> </ul>	<ul style="list-style-type: none"> <li>• Degraded land (former monoculture)</li> </ul>
<b>Beacon Food Forest</b> USA, urban metro Public	2011	Community, Education	7 ac 2.8 ha	<ul style="list-style-type: none"> <li>• Motivation related to education, community building and land stewardship (senior expertise, long-standing involvement in urban policy); Network and partnerships (access to land, grants, expertise and volunteers)</li> <li>• Professional site plan (permaculture class, landscape architect, community involvement)</li> <li>• Farming, design &amp; community engagement know-how (landscape architecture, organic farming, community projects)</li> </ul>	<ul style="list-style-type: none"> <li>• Tenure insecurity (unspecified long-term agreement)</li> <li>• Restrictive regulations (e.g., water conservation, land access)</li> <li>• Loss of funds (some trees dying or struggling, overharvesting)</li> </ul>

*continued*

**Table 3, continued**

Name, Location, Ownership	Start	Main Functions	Size	Success Factors	Barriers
				<ul style="list-style-type: none"> <li>• Start-up funds (~US\$135,000 for participatory design and initial set-up)</li> <li>• Media coverage (further funds, partnerships and volunteers)</li> <li>• Supportive regulations (urban policy prioritizing tree cover and urban agriculture)</li> </ul>	
<b>Den Food Bosch</b> <b>Netherlands, urban</b> <b>hinterland</b> <b>Semi-public</b>	2016	Food Production, Education	2.5 ac 1.0 ha	<ul style="list-style-type: none"> <li>• Motivation related to learning and demonstrating healthy food production; Network (senior expertise, landowners, students)</li> <li>• Land access (collaboration with local water authority)</li> <li>• Start-up funds (for infrastructure and plants)</li> <li>• Professional site plan (student thesis)</li> <li>• Farming know-how (forestry, agriculture, syntropic farming)</li> <li>• Supportive regulations (“Green Deal Food Forests”)</li> </ul>	<ul style="list-style-type: none"> <li>• Degraded land (former monoculture)</li> <li>• Lack of funds (income)</li> <li>• Lack of practical business experience</li> <li>• Restrictive regulations (e.g., certification process)</li> </ul>
<b>Keela Yoga Farm</b> <b>Portugal, rural</b> <b>Private</b>	2017	Education, Recreation (Self-sufficiency)	2.5 ac 1.0 ha	<ul style="list-style-type: none"> <li>• Motivation related to healthy food and self-sufficiency; Network (work &amp; knowledge exchange with locals, plus volunteers)</li> <li>• Start-up funds (focused savings, low costs)</li> <li>• Professional planning (diverse pilot, focused main area)</li> <li>• Know-how in farming (permaculture) and recreation (yoga)</li> <li>• Diverse revenue (yoga retreat, education)</li> </ul>	<ul style="list-style-type: none"> <li>• Learning a new language</li> <li>• Accessing land (long search, high prices)</li> <li>• Drought</li> <li>• Regulatory restrictions (immigration)</li> </ul>

mance (Wiek & Albrecht, 2021). It is important to recognize that these factors are dependent on an existing sustainable entrepreneurial ecosystem (Cohen, 2006), which includes, among others, the availability (pool) of suitable land, financing options for sustainable businesses, and regulations favorable to agroforestry (Albrecht & Wiek, in press). In the following, we focus on the general success factors and barriers related to organization and management, and touch on structural elements of the entrepreneurial ecosystem only in passing.

### **Recruiting Motivated Entrepreneurs**

Motivated entrepreneurs—whether initiators or

recruited ones—are the key seed for a food forest. In most cases, an individual or a small group (two to four people) starts the endeavor. Most of them live in or near the food forest and run it as a family business. Some of the food forests on public land are managed by communities (e.g., Beacon Food Forest). Food forester managers develop the food forest as fulfilling work, are keen to educate themselves and others on food, are entrepreneurial in overcoming obstacles, and are driven to contribute to a sustainable food system.

*My motivation was ... when I was studying in Eberswalde international forestry ecosystem management ... we talked only about the problems .... So,*

*half of the students were in a big crisis. ... I needed some kind of solution. That I want to work on something actively and I want to see that there are ways where we can actually feel like you belong to the planet, and we are not only here to destroy it. And then, food forests were ... the answer. Because it's about how men and nature can live together and how you can live in your environment without being a nuisance. (Janine Raabe, Den Food Bosch, 2018, Figure 5)*

**Figure 5. Janine Raabe and Paul Müller, Den Food Bosch, 2018**



Photo: Maud Dieminger.

They often hold both individualistic values of satisfying work and self-direction as well as collectivist values of public goods such as an intact environment. The economic viability of the food forest is often considered a means to fulfilling work and achieving environmental and/or social goals. Accordingly, food forests are often initiated as a hobby or side business primarily with social and environmental goals. Only later, and not in all cases, it might successfully transition into professional operations. The entrepreneurs of Essgarten, for example, collected unusual edible plants for 10 years before realizing the business potential. The managers of socio-cultural food forests often have a background in health or education (e.g., physiotherapists at Essgarten; yoga teacher at Keela Yoga Farm), while managers of food forests that focus on food production often have a background in agriculture (e.g., agriculture and forestry at Den Food Bosch; agronomy and biodiversity at Fazenda Ouro Fino).

The case of Den Food Bosch shows that the loss of motivated and knowledgeable entrepreneurs during the early implementation phase (years one to three) poses a major barrier to the overall success as the first years are critical for establishing the multiple strata of the food forest (irrigate, prevent overgrowth, etc.) and laying the basis for economic viability.

### *Accessing Land*

A major challenge for food forest initiatives is land access. Urban development pressure and high prices often lead to short-term lease contracts, small sites, or less suitable locations for food forests. Larger sites are in rural or hinterland locations, difficult to access for volunteers or guests, and often with limited access to farmers markets and other distribution locations. Innovative land access models such as land trusts or partnerships with public institutions (e.g., water authorities) or private institutions (e.g., retirement homes) can mitigate this challenge, but only to some extent. Beacon Food Forest, for example, partnered with the city of Seattle's Department of Neighborhoods to gain formal site access. However, negotiations took almost three years, and their tenure continues to be insecure. Mienbacher Waldgarten leases the land from a neighbor who runs a nursery and benefits from the produce. Although land tenure is not formally secured, there is mutual trust based on similar values regarding environmental education and edible plants. The land for Foodforest Ketelsbroek and for Keela Yoga Farm was purchased using personal savings. While this financing option secures land access, shared ownership and decision-making, such as through a land trust or an easement, would allow for more permanently securing land for regenerative agriculture in general and food forests in particular. Developing food forests as cooperative businesses could mitigate this deficit, too. Another



common challenge is the poor soil quality at many sites, often caused by prior land use (e.g., monoculture farming, urban site). This often requires several years of remediation activities and building a healthy soil base. Several sites have water access on or close to their land (e.g., ponds, streams, well), which is crucial for establishing plants over the first few years.

### ***Securing Start-up Funds***

Most implementations of food forests lack sufficient start-up funds during the first 2 to 3 years, when infrastructure and plant set-up require investments and while revenue is very low. Common coping strategies are lowering the cost of living, using personal savings, or working at other jobs. While some food foresters are able to raise external start-up funds, they are often earmarked for infrastructure and educational events and rarely for wages. Over more than seven years, Beacon Food Forest was developed through the work of volunteers, until a registered nonprofit organization was formed and funding for two part-time positions was secured. Private funds may become available through partnerships like at Mienbacher Waldgarten, where the property owner, who is interested in the produce from the food forest, funded a seminar house. General fundraising know-how is critical for long-term implementation success, and accessing social and/or sustainable financing options (as far as there are any available) aligns the sustainability ambition of the food forests with their funding sources.

### ***Professionally Planning and Designing the Site***

Careful planning and site design are important success factors for food forests, in particular for those with a community orientation or aspirations for high productivity. Such planning and design can benefit from (in-kind) expert advice, student thesis projects, or stakeholder workshops. Den Food Bosch, for example, organized workshops with experts and the university community to develop a detailed site plan. Beacon Food Forest adopted a community-based planning approach, which is resource-intensive but creates broad buy-in and long-term support for the food forest. For large food forests with focus on food production

service(s), pilot projects allow for fail-safe learning as part of the implementation process. For example, Fazenda Ouro Fino and Keela Yoga Farm started with a highly biodiverse design of a small area, followed by a more efficient design with high-yielding crops.

### ***Acquiring Entrepreneurial Know-How and Tools***

The lack of practical business know-how, gained through experience, or resistance to conventional financial instruments (e.g., loans) commonly hinder professional implementation of food forests. Food foresters are rarely competent in business planning, fundraising, investment, bookkeeping, payroll, human resources, and marketing. Instead, motivation and activities are overly focused on the main service(s) the food forest is being developed for (food production, education, etc.), often based on personal sacrifices. To sustain livelihoods, entrepreneurial know-how is best developed prior to or very early in the implementation phase. A shift of mindset may also be required, balancing the value of biodiversity and organic development with effective and efficient design and management techniques. Some of the sampled food forests have used professional business and organizational practices to reach economic viability. The core team at Beacon Food Forest, for example, has established formal human resources procedures to train its volunteers and to deliver its workshops, which, in return, have convinced funders and secured a sufficient level of revenue. At Fazenda Ouro Fino, the focus on specialty crops, and at Essgarten on specialty events, accompanied with specific procedures and marketing, make these food forests economically viable. At Ketelbroek, keeping management costs in check secures economic viability; site maintenance requires only minimal effort at this point, and harvesting is done together with business customers.

### ***Acquiring Farming Know-How and Equipment***

Insufficient farming and food forest know-how is a common implementation challenge. The diversity of plants and services can be overwhelming, and trial and error often leads to expensive plant loss and design flaws. Lack of qualified staff hinders effective food forest implementation, too. For

**Figure 6. Henrique Souza, Fazenda Ouro Fino**



Photo: Sebastian Becker

example, Essgarten with 1,200 species requires special skills that volunteers were not able to acquire; thus, it hosted interns from an agricultural university. With increased production focus (Den Food Bosch) or diverse clients (Essgarten), skill requirements increase, which can be compensated only to some extent by creativity and perseverance.

*Back in 1993, the challenges were immense. But they were important to develop our knowledge, new technologies, and ripen. The lack of knowledge was definitely the biggest challenge. We didn't know how to build the farm and had no money. There weren't any examples of a food forests in Brazil, and we were pioneers. ... But I consider the willingness-to-do as a mandatory resource. ... Now we offer 2-year courses to train professional food foresters to gain the necessary experience. (Henrique Souza, Fazenda Ouro Fino, translated, 2018, Figure 6)*

Specific professional training in farming, forestry, ecology, and/or in education, social work, and design helps develop the specific services of a food forest. Expertise can also derive from personal contacts, site visits, or collaboration. Complementary to the know-how, food forests require professional equipment for the main products and services (e.g., processing machines, guest facilities) to reach economic viability. Off-grid equipment can enhance independence and minimize cost over

the long term. Fences can protect young plants from wildlife. And so forth.

### ***Overcoming Regulatory Restrictions***

Restrictive policies and regulations can create major barriers for food forests. For example, food processing associated with a food forest can require certificates and safety measures that may be costly to acquire or may significantly limit the product range. Regulatory agencies often do not recognize agroforestry or food forests as a legitimate type of land use.

*This was agricultural land, and my landlord said that we change this to garden land as we advertise it as a garden and have classes and people here. Then we had to have a landscape architect come here and create a plan and so on. And the requirement was that we create a compensation site. (Hannelore Zech, translated, 2018, Figure 7)*

**Figure 7. Hannelore Zech (left) with her landlord, Mienbacher Waldgarten**



Photo: Lisa Leuth

Food foresters have either worked with or around governmental agencies to overcome regulatory barriers, e.g., by providing a professional site plan or installing relevant gastronomy infrastructure; or they gave up on product ideas or other non-compatible plans. The city of Seattle, on the other hand, passed a policy to allow community-led public land management, which enabled the development of Beacon Food Forest on a public site. Beacon Food Forest also benefits from Seattle's policies that prioritize tree-cover and urban agriculture and provide respective funds. Water conservation restrictions, however, still pose certain barriers, but the food forest team found creative solutions to comply with them. A broad, national policy solution has been implemented in the Netherlands, where stakeholders from government, NGOs, and practitioners signed a "Green Deal Food Forests" in 2018 to create a regulatory framework that supports implementation of food forests nationwide.

### *Diversifying Revenue Streams*

The multitude of food forest services allows for diversifying revenue streams over time. Fazenda Ouro Fino, for example, started with specialty food items for the local and international market, but added trainings as the food forest matured and syntropic farming grew popular. Foodforest Ketelbroek started with consultation and education; later, with growing demand from the local gastronomy, food sales became a main source of revenue. Marketing, in particular through social media, is an important means to achieve diversification. At Essgarten, for example, private dinners turned into wider demand for recreational and educational events. A basket of specialty products sent to gardening magazines triggered wide media attention and broadened the customer base. Public food forests, like Beacon Food Forest, are mostly bound to acquiring public and private grants as their tenure agreements restricts regular business income generation. In this case, exploring social purpose corporation status (a legitimate corporate form in Washington state since 2012) might be a way to overcome this barrier to economic viability over the long term.

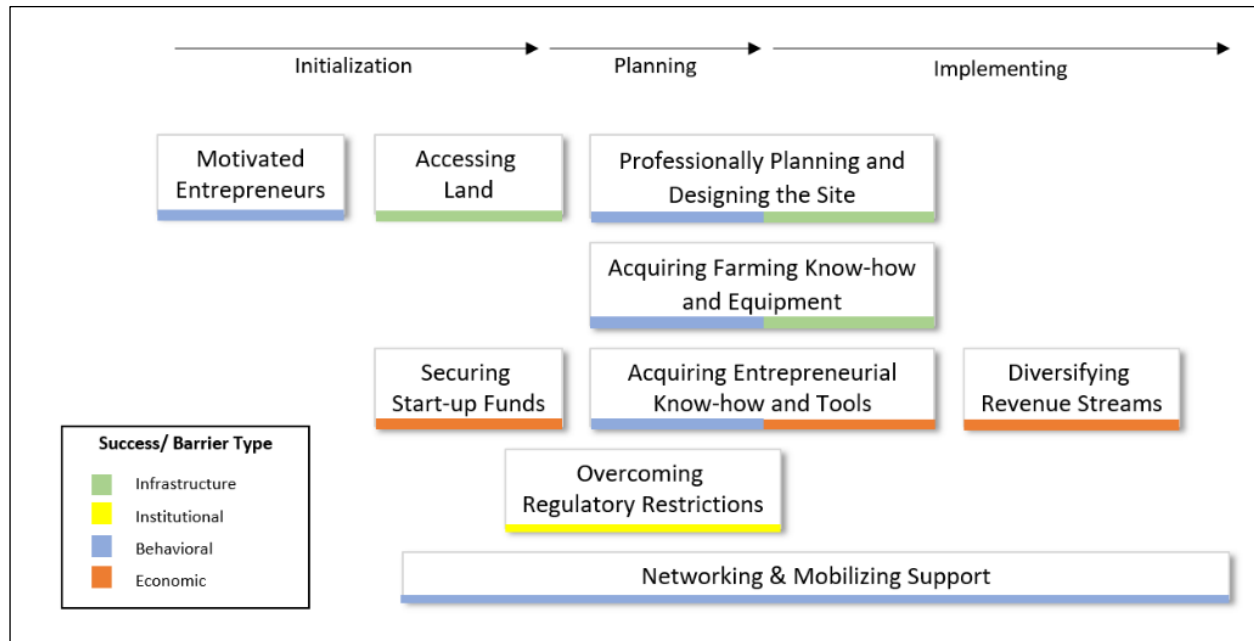
### *Networking and Creating Strong Partnerships*

Networking and creating strong partnerships are key accompanying activities for early-stage success, for instance in accessing land and raising start-up funds, and they continue all the way into the implementation stage (e.g., for diversifying revenue). The entrepreneurs of Den Food Bosch, for example, visited many food forests to acquire know-how and develop partnerships that were later leveraged in the planning and implementation stage. Essgarten benefited from pro bono design advice by a landscape architect friend. Networking with peers is a key source of inspiration for many food forests, e.g., learning from indigenous food forests in Kenya, permaculture food forests, or Ernst Götsch's food forest. Shared values pertain to seeking solutions for a world in crisis, learning from nature (e.g., Gaia, Pachamama), and experimenting with uncommon foods.

### **Success Factors and Barriers Mapped onto the Development Phases**

While all nine factors of success are important, independent of the food forests' main services, they come into play differently over the course of the food forest development (Figures 4 and 8). It all starts with motivated entrepreneurs, followed by securing access to land and start-up funds (Initialization). The planning phase and early implementation phase then require detailed site planning and overcoming regulatory barriers as well as acquisition of specific farming and/or food and entrepreneurial knowledge, plus infrastructure. For the main and later implementation phase, expanding and adjusting the knowledge and know-how as well as diversifying revenue streams become important factors. Networking and mobilizing support, e.g., mentorships that enable the entrepreneurs to become self-motivated and resilient, are critical activity during the entire development process.

Findings from the seven case studies suggest that economic factors are critical in each of the three stages. There is room for experiments and mistakes, but they should be limited. For example, Essgarten evolved organically without much planning (and many mistakes), but later received professional advice that improved its economic viability. Younger food forests often start with high

**Figure 8. General Development Path of Food Forests with Relevant Factors of Success**

motivation and thorough designs, but to be successful, they need to advance fundraising activities and acquiring practical entrepreneurial know-how—major barriers for many food forests. The path of Den Food Bosch exemplifies these patterns. A group of motivated agricultural students oriented toward healthy food production and business development initiated the food forest, with access to expertise and early regulative support. Initial fundraising secured land access and some limited start-up funds. The site was well planned and designed. Implementation quickly advanced due to previously acquired specific farming know-how. However, despite some business training at the university, there were gaps that prevented the development of a sustained livelihood for the main staff, which led to high stress levels. Eventually, the initiators left their positions, which casts doubt on the overall success.

## Discussion

Food forest implementation is a comprehensive endeavor that depends on behavioral, infrastructure, institutional, and economic factors pertaining to organization and management. Some of these factors can be secured through general strategies such as education and training, while others call for

more specific strategies such as networking with particular actor groups.

For example, similar to studies on other grass-root movements (e.g., LeBlanc et al., 2014), our findings point to the need for sustainable business training and advice in the set-up of food forests to overcome major financial barriers. In particular, entrepreneurial know-how in fundraising seems to be one critical business factor for successful implementation (Albrecht & Wiek, 2021). Food foresters, similar to social entrepreneurs, often seem to be challenged by balancing the pursuit of the public good *and* paying sufficient attention to the economic viability of their enterprises (Schaltegger & Wagner, 2011). While their reservations are well justified considering the prevalence of exploitative neoliberal business practices (e.g., profit maximization), they nevertheless demonstrate a lack of sustainable business know-how. Sustainable business models, such as cooperative businesses, social purpose enterprises, or benefit corporations, offer options for pursuing both environmental and social goals *and* economic viability. On the other hand, their collectivist values (e.g., intact environment, social wellbeing) allow food forest entrepreneurs to tap into resources provided through similarly collectively oriented network partnerships

(Tiessen, 1997). Balancing both pursuits seems to be the solution here, even if that is challenging to realize.

For other success factors, such as accessing land and securing start-up funds, specific strategies need to be adopted, such as starting the food forest enterprise as a cooperative business with a broader investment base, or collaborating with NGOs that co-fund access to farmland and thus might be open to co-fund food forests (e.g., the Kulturland eG in Germany or the American Farmland Trust in the U.S.), or enabling farm succession to food foresters who are not family members. For public matters such as securing access to public land or public funds as well as coping with regulatory barriers, negotiations with local authorities or securing professional support (e.g., for licenses or site plan) might be promising strategies. These examples also point to the interdependence of success factors, in this case between these factors and networking with government agents and potential funders.

The findings confirm previous research on success factors of food forests in particular regions (Belcher et al., 2005; Björklund et al., 2019), namely the importance of specialty entrepreneurial and farming know-how, land tenure, and professional site and management plans. This study offers a more systematic exploration of the success factors and barriers covering economic, infrastructural, behavioral, and institutional factors, and mapping them over time. We found that these factors are robust across geographic regions and, for the most part, also across different services provided. Implementation paths differ in some specifics, and some factors come in earlier or later, but on a general level, all success factors are relevant to the cases studied here. Networking and creating strong partnerships should be considered a superior factor as it can facilitate securing all other success factors. Here, shared values of having a solution orientation, ecocentrism, and cultivating uncommon foods, as well as sustainable food systems in general were observed, as suggested in other studies (e.g., Wartman et al., 2018). Entrepreneurs and partners are often highly motivated by these values at the beginning; however, to ensure ongoing motivation, barriers need to be overcome and values need to be matched by sustainable practices and

structures, such as through long-term land access, shared decision-making, and economic viability.

Generally, these success factors apply to most farm and food enterprises. However, since food forests pursue long-term benefits and focus on high biodiversity, they grapple with these factors in quite different ways. High start-up funds need to be secured to yield success, which then only manifests over the mid- to long-term. While food forest entrepreneurs appreciate the diverse and natural work environment they engage with, they tend to reject or underestimate the economic requirements to sustain their livelihood. Trainings in how to secure social-finance investments and how to adopt alternative (sustainable) business practices and models (e.g., cooperative businesses) may help overcome these barriers. For training in specialty farming, the challenge is often to find locally relevant information on complex plant combinations. To a certain degree, trial and error testing remains the best strategy. However, work experience at agroforestry and permaculture farms or orchards in similar climates, online or in-person training and research on perennial polycultures, and advice from specialty landscape architects can minimize the risks in designing and managing the site.

Some cases, while successful, did not exactly follow the sequence of the implementation process described above. For example, Essgarten implemented an edible homestead as a hobby first, mostly through a trial-and-error approach. It later explored site adjustments and business options when the food forest was in a mature state. While there are such successful cases based on incremental changes and iterations, they are exceptions. For most food forests, sequencing from initial conceptualization through planning and design to implementation seems a robust recipe for success. For example, the findings suggest that food forests with a focus on food production benefit from developing a professional site design (with a focus on high-value specialty crops) and a solid business plan (with direct marketing channels) at the beginning. Compared to older sites, recent start-ups thoroughly planned the implementation process with access to senior expertise (e.g., Den Food Bosch). It is promising to see how young food




forest managers like those at Den Food Bosch adopt permaculture and syntropic farming, developed in tropical climates in the 1990s, with intricate designs for temperate climates. Furthermore, some younger food forests contribute to structural changes with more purpose-oriented forms of ownership (through foundations). A more detailed cross-case analysis of such uptakes may provide further insights into how to best advance broad adoption of these practices. The time seems ripe for more advanced pilots, such as recent cross-sectoral projects in the Netherlands (Green Deal, 2020) that aim at advancing food forestry across the country through large-scale pilots, monitoring programs, and advancing recognition of food forests in government and administration.

The findings of this exploratory study are limited, primarily due to the small and diverse sample of food forests. Pragmatic sampling was required because of limited documentation, time, and financial resources. The analyzed cases are located in different regions and situated in different contexts, with preference given to Europe and North America; hence, findings cannot be generalized beyond this sample. In-depth case studies and comparative analysis should be conducted to broaden and deepen insights on entrepreneurial motivations, social-cultural backgrounds of entrepreneurs, and more, and their influence on food forest success. While this study focused on success factors directly tied to the organization and management of food forests, further studies should identify the structural elements in the entrepreneurial ecosystem that support or hinder success of food forests.

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## Conclusions

Food forests are differently implemented. Yet specific factors ought to be considered for each phase of the implementation, with economic factors being particularly influential on success. From early on, acquiring business and specialty farming know-how, securing start-up funds for infrastructure *and* staff, and securing long-term land access are the most crucial success factors. This calls for novel funding and land access schemes that support the start-up of sustainability-oriented food forest entrepreneurship (cooperative businesses, benefit corporation, etc.) that aims at producing food and securing livelihoods, while offering social and environmental services. The long-term perspective that tree growth and generation-spanning solutions require calls for committed, purposeful partnerships that last. The success factors identified here need to be validated and nuanced through additional case studies, particularly on food forests outside Europe, and related cross-case comparisons. Complementarily, broader studies on structural factors of the entrepreneurial ecosystem need to expand this research on implementing food forests. 

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## POLICY AND PRACTICE BRIEF

# An overview of the Paycheck Protection Program (PPP) loans and implications for agricultural enterprise recovery from COVID

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## Abstract

In this policy and practice brief, we analyze the U.S. Paycheck Protection Program (PPP). The PPP

provided loans to support businesses during the COVID-19 pandemic. Some businesses received timely relief from the PPP loans, while some were not able to acquire assistance. Production agriculture received 617,128 PPP loans totaling \$17 billion.<sup>1</sup> The reach of PPP loans across the country was broad. In 80% of U.S. zip codes, at least one farm received a PPP loan. The average size of the

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<sup>1</sup> All currencies are U.S. dollars.

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loan in agriculture (\$27,744) was substantially smaller than the national average (\$74,156). The authors conducted interviews with PPP recipients and present some findings from those. The most recent data reveal challenges and opportunities for agricultural businesses, depending on their scale of operations and regional disparities. Community organizations working with small agriculture-related businesses need to be aware of various impacts while providing future assistance.

### **Keywords**

Paycheck Protection Program (PPP), Agriculture, Entrepreneurship, COVID-19, Pandemic, Governmental Support

### **Background of the Issues**

Entrepreneurs and small businesses are the heart and soul of our communities. According to the Small Business Administration (U.S. SBA)'s Office of Advocacy, more than 30 million small businesses in the U.S. represent 99.9% of all U.S. businesses (U.S. SBA, 2020a). Nearly half of all Americans are employed by small businesses, which the SBA generally defines as firms with fewer than 500 employees. In considering the industrial sectors, agriculture has one of the highest shares of small business employment (86%) by industry, followed by construction (82%) and real estate (68%).

Unfortunately, the COVID-19 pandemic has created unprecedented impacts on all companies and employees worldwide. The U.S. economy mirrors these global concerns. The U.S. government provided support to small businesses by implementing the Paycheck Protection Program (PPP). This policy and practice brief analyzes the PPP created as part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act. We provide a descriptive and geographical analysis of the PPP loan program by analyzing secondary data provided by SBA for the years of 2020 and 2021. Summary statistics are presented at various levels of importance: zip code level, business size, experience, loan amount, and years of the program (i.e., 2020 and 2021). This allows a greater understanding of program participants and loan distribution to agriculture.

By the time the CARES Act was passed on March 27, 2020, small business owners were already severely affected by disruptions related to COVID-19: 60% had already laid off at least one worker (Humphries et al., 2020). The number of active small business owners in the U.S. plummeted by 3.3 million, or 22%, from February to April 2020 (Fairlie, 2020). More than 97,900 businesses had permanently closed during the pandemic as of the second quarter of 2020 (Yelp, 2020). Almost 80% of respondents to the Small Business Credit Survey, conducted by the U.S. Federal Reserve Banks in September and October 2020, reported a decline in revenues and a 50% reduction in their workforce between 2019 and 2020 (Federal Reserve Banks, 2021).

Many scholars struggle to comprehend the magnitude and complexity of entrepreneurship development in a “new normal” with multiple shocks (Acs et al., 2017; Alvedalen & Boschma, 2017; Mayer & Motoyama, 2020). Several studies have explored the impact of COVID-19 on small businesses in the U.S. For example, Bartik et al. (2020) surveyed over 5,800 small businesses early in the pandemic (between March 28 and April 4, 2020) and reported that mass layoffs and closures triggered higher risks of business closure as the pandemic extended to a longer period of threats. Small businesses became financially fragile and were hesitant to seek aid due to bureaucratic hassles and difficulties navigating the application process. Humphries, Neilson, and Ulyseas (2020) found that the smallest businesses were the least aware of the government assistance programs available and had the slowest growth in awareness after the passage of the CARES Act, never catching up with larger businesses. Demko and Sant’Anna (2021) also found that smaller businesses had less knowledge about the programs available when compared to larger businesses.

### **What Do We Know About the PPP Loan in Agricultural Sectors?**

In response to a small business crisis, Congress established the PPP, administered by SBA, to help small businesses, self-employed workers, sole proprietors, eligible nonprofits, and tribal businesses keep their employees on the payroll. Agricultural

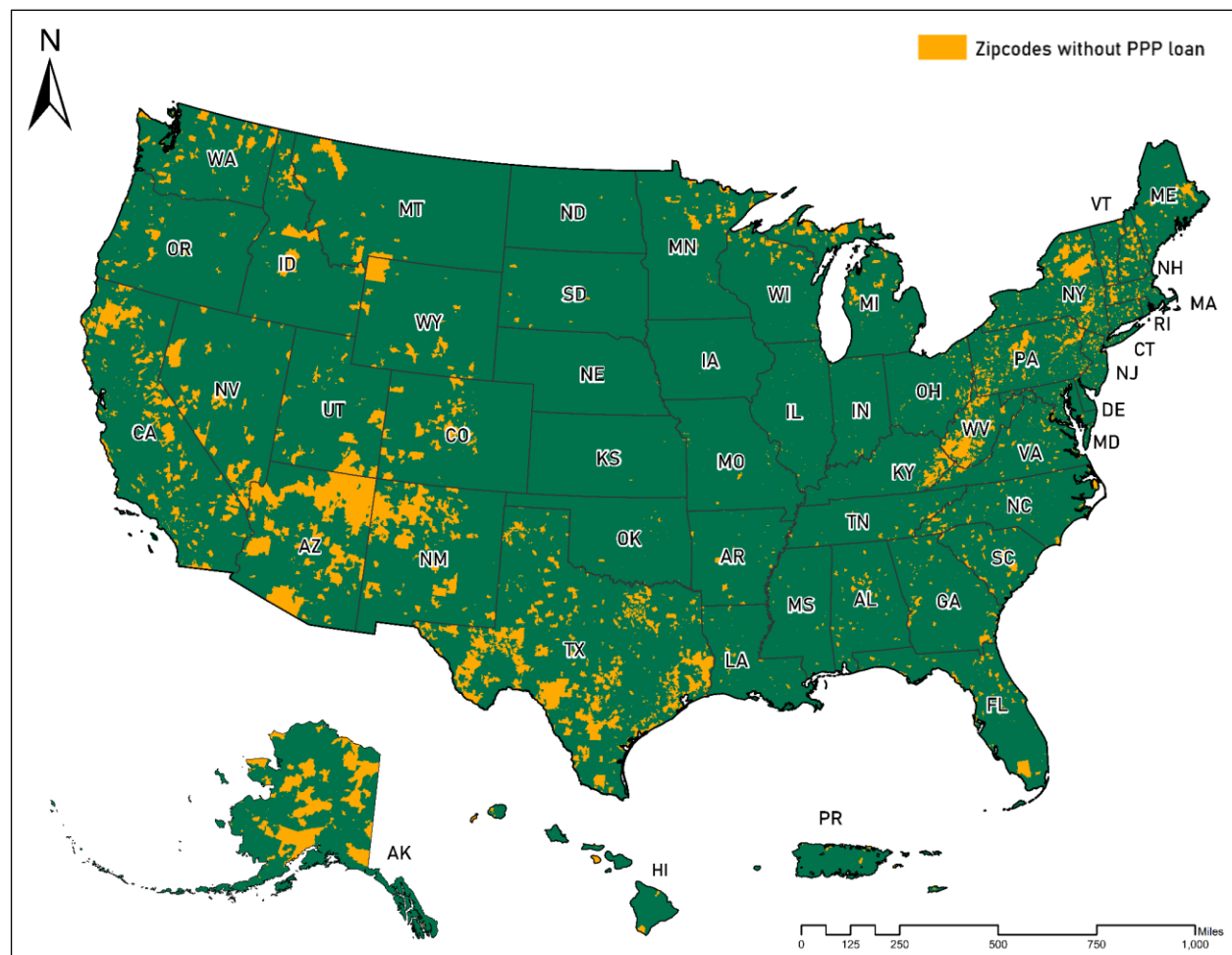
enterprises were eligible to receive loans on the same basis as other small businesses (Hungerford et al., 2021). While the PPP has been one of the largest economic stimulus programs in U.S. history, the SBA also offered other, smaller disaster relief programs to assist small businesses during the COVID-19 pandemic, such as the Economic Injury Disaster Loan (EIDL), EIDL Advance, Targeted EIDL Advance, Supplemental EIDL Advance, Restaurant Revitalization Fund, Sheltered Venue Operators Grant, and SBA Debt Relief program.

According to experts, “The scale of PPP is historic” (Parilla & Liu, 2020, para. 2). From April 3, 2020, through May 29, 2021, during the first and second PPP draws, production agriculture received

617,128 loans totaling \$17 billion. Production agriculture includes industries under North American Industry Classification System (NAICS) Code 11—Agriculture, Forestry, Fishing and Hunting. Using national firm-level data on all PPP loans released by SBA, we mapped the program coverage in agriculture. The reach of PPP loans across the country was broad. In 80% of U.S. zip codes, at least one farm received a PPP loan in 2020 or 2021 (Figure 1). At the same time, the average size of the PPP loan in production agriculture (\$27,744) was smaller than the average across all 24 industrial sectors of the economy, where the average was \$74,156.

PPP reached smaller farms in 2021 as the average PPP loan was three times smaller, \$19,204

**Figure 1. Distribution of Paycheck Protection Program (PPP) Loans in Agriculture**



Source: Analysis of 2020 and 2021 PPP data released by the Small Business Administration (SBA) in June 2021.

compared to \$58,136. In 2020, during the first draw of PPP loans (approvals from April 3 through August 8), production agriculture received \$8 billion in PPP. Later, the program was reopened from January 11 until May 31, 2021. In 2021, the amount of PPP issued to agriculture increased by \$1.4 billion (+18%) in comparison to 2020. In addition, the number of PPP loans to production agriculture entities saw a three-fold increase, from 135,374 in 2020 to 481,754 in 2021 (Table 1).

Farms with fewer than five employees received 50% of the approved amount (\$8.3 billion) and 90% of all loans (554,190). The average size of PPP

loans to these borrowers was \$15,038 (Figure 2 and Appendix, Table A1). Beginning farmers (those with fewer than two years of experience) received 8,238 PPP loans totaling \$578 million. The average loan size received by a beginning farmer was \$70,155, on par with the average loan size received by any small business in the U.S. (Appendix, Table A2).

### Discussion and Recommendations for Research, Policy, and Practice

Many U.S. government agencies have spent significant time and resources to support enterprise and

**Table 1. Paycheck Protection Program (PPP) Loans to Agriculture**

	Timeline	Loan Amount	Number of Loans	Median Loan Size	Average Loan Size
First PPP draw	April 3–August 8, 2020	\$7,870,051,274	135,374	\$20,000	\$58,136
Second PPP draw	January 11–May 31, 2021	\$9,251,580,911	481,754	\$20,741	\$19,204
<b>Total for PPP</b>	<b>37 weeks and 6 days</b>	<b>\$17,121,632,186</b>	<b>617,128</b>	<b>\$20,537</b>	<b>\$27,744</b>

Source: Analysis of 2020 and 2021 PPP data released by SBA on June 1, 2021. All values in US\$.

**Figure 2. Paycheck Protection Program (PPP) Loan Recipients in Agriculture by Business Size**



Source: Analysis of 2020 and 2021 PPP data released by SBA on June 1, 2021.

community development attempting to improve social and economic mobility. Challenges compromise these programs' outcomes and effectiveness (Aziz, 1984). Scholars have shared concerns that rural communities are generally underperforming compared to metropolitan areas, and the gap is widening in wealth distribution and community well-being (Drabenstott, 2003; Falcone et al., 1996; Henderson & Novack, 2002; Lyons, 2002; Porter et al., 2004). In 2021, SBA made changes to focus the COVID-19 relief program on businesses in low- and moderate-income (LMI) communities (Schweitzer & Borawski, 2021). As a result, the rate of loans to small businesses in rural areas increased by 12% compared to the daily average rate of loans before the changes (SBA, 2021). However, the exclusive application period only lasted two weeks, while the first PPP draw in 2020 lasted 18 weeks, and the second draw in 2021 lasted for over 19 weeks.

The authors performed interviews with a variety of small businesses to provide a qualitative assessment of business' experiences applying for and receiving PPP loan funds in 2020. Small businesses interviewed voiced that the exclusive PPP application period created by SBA was a valuable change, though its duration was too short. Policymakers should look into dedicating a longer period of time for the PPP loan application to smaller businesses. This action is essential if the PPP loan program aims to reach more diverse businesses in terms of ownership and size.

Some articles reported mixed impacts of PPP loans on U.S. agriculture. According to the American Farm Bureau Federation (2020), PPP loans had minimal impact on farmers and ranchers due to their limited use of the program. Reasons included (1) farmers and ranchers had limited or no experiences applying for SBA loan programs, (2) farming enterprises differ in characteristics and nature of operations in comparison to other small businesses (for example, having different tax forms and a labor force that varies according to production and seasons), and have more complicated asset structure dynamics (for example, land and equipment) on one farm. Additionally, the slow release of guidance on the PPP posed limitations for farmers and ranchers to complete and prepare paper-

work because farming activities are usually determined a year before. Therefore, policymakers should design future programs by taking into account the particular characteristics of the business it aims to target.

While conducting interviews, Demko and Sant'Anna (2021) confirmed that the lack of clarity and transparency about the PPP application was an issue. Although SBA provided an application form, every lender had its own form, format, or portal. Lenders also required different information on their respective applications. For more than 30 years, SBA has been prohibited by law from providing disaster assistance to agricultural businesses (SBA, 2020b). However, in May 2020, changes in legislation allowed American farmers, ranchers, and other agricultural businesses to have access to the Economic Injury Disaster Loan (EIDL) program. In such circumstances, agricultural enterprises were less likely to have established relationships with SBA. They would have benefited from technical assistance and guidance through the SBA's PPP application and forgiveness processes. One business owner shared, "I would ask for help from the banker, and they said to talk to my accountant. My accountant said you have to talk to your banker." This highlights the importance of communication strategies and technical assistance to guarantee the success of a public policy. Future research could investigate which communication strategies are more cost effective for which type of public policy depending on the target group.

Many interview respondents did not realize that rent, mortgage, and utility payments could be included in the requested PPP amount. As a result, they missed out on the opportunity to receive higher forgivable loan amounts from SBA. Most businesses do not have experience in doing their financials. For these, there was a steep learning curve to understand out how to apply for PPP. "For us, it was all foreign language," said one PPP recipient. In the case of agriculture, 55% of approved loans covered payroll only. Research is also needed to understand how asymmetric information affected access to PPP due to business characteristics. This would help identify best practices for similar future programs.

PPP helped many industries to stay afloat, and some would not have survived without it. In some cases, PPP recipients in the first round were not eligible in the second round because they did not suffer a 25% loss of revenue in 2020. Here, the first PPP draw helped these businesses maintain their workforce and continue operating normally, avoiding large negative effects on their revenue. The U.S. was the only country in the world to implement a payroll subsidy via banks and financial institutions (Hamilton, 2020). While PPP offered necessary financial relief by allowing small businesses to continue paying their employees, this type of support inevitably is insufficient to keep some businesses afloat. One business owner said,

“eight weeks of pay cannot be enough to sustain a business for six months of the downturn.” Many community organizations have been assisting those small businesses who have survived the economic loss and mental stress of the pandemic to figure out how to recover more fully from the COVID disaster. To many agricultural businesses, recovery is a long road filled with unknowns. PPP offered some relief to a limited number of businesses in the agriculture and food industry. More transformative strategies and well-defined and well explained policies will need to be established soon to prevent permanent damage to entrepreneurs and small businesses who are the heart and the soul of our communities.

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## Appendix

**Table A1. Paycheck Protection Program (PPP) Loan Recipients in Agriculture by Business Size**

Business Size	Loan Amount	Number of Loans	Median Loan Size	Average Loan Size
No (0) employees	\$507,867	53	\$6,160	\$9,582
1 to 4 employees	\$8,334,109,387	554,190	\$17,985	\$15,038
5 to 9 employees	\$1,474,244,595	32,487	\$38,400	\$45,380
10 to 19 employees	\$1,562,332,173	16,114	\$86,800	\$96,955
20 to 49 employees	\$2,107,368,419	9,472	\$199,500	\$222,484
50 to 99 employees	\$1,231,982,198	2,661	\$434,513	\$462,977
100 to 249 employees	\$1,407,453,605	1,584	\$790,650	\$888,544
250 to 499 employees	\$865,667,043	509	\$1,283,600	\$1,700,721

Source: 2020 and 2021 PPP data released by SBA on June 1, 2021.

**Table A2. Paycheck Protection Program (PPP) Loan Recipients with Fewer than Two Years of Business Experience**

	Loan Amount	Number of Loans	Median Loan Size	Average Loan Size
Agriculture	\$577,940,325	8,238	\$20,400	\$70,155
All industries	\$42,943,743,902	608,347	\$20,566	\$70,591

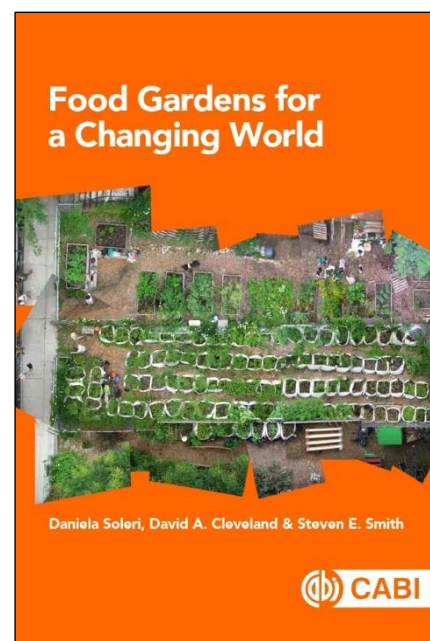
Source: 2020 and 2021 PPP data released by SBA on June 1, 2021.



## Urban and peri-urban agriculture in the global food security conundrum

Review by Innocent Awasom \*  
Texas Tech University Libraries

Review of *Food Gardens for a Changing World*, by Daniela Soleri, David A. Cleveland, and Steven E. Smith. (2019). CABI. Available as paperback, hardcover, ePDF, ePub, and Kindle; 327 pages. Publisher's website: <https://www.cabi.org/bookshop/book/9781789240993>



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Rural exodus and increased urbanization have led to the development of urban slums in major cities across the world, resulting in food insecurity. Food deserts and food pantries are cropping up in the developed world as famine and malnutrition ravage parts of the developing world, exacerbated by endless conflicts. Therefore, food systems and value chains are facing pressures and are increasingly vulnerable due to strains on natural

ecosystems and the impact of climate change. These strains have impacted not only land use, but also soil quality, leading to reduced quantity and quality of food available at reasonable costs to the urban poor. Thus, there is an urgent need for creative methods of food production in the urban centers to improve the sustainable food supply value chain. Food gardens as part of urban agriculture have the potential to mitigate the rise in hunger and food insecurity as it has inherent health, socio-cultural, environmental, and economic benefits as documented by Lawson (2005) and in Soleri, Cleveland, and Smith's *Food Gardens for a Changing World*. Urban food gardens provide fresh, nutritious food that alleviates hunger and improves the health and wellbeing of the local community—plus any excess produce can be sold for additional income. Food gardens improve urban environmental quality and carbon footprint, and add value as

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places of community connection, networking, and empowerment.


*Food Gardens for a Changing World* is a gardener's handbook that offers practical guidance on gardening processes. It offers guidance in the biological (seed selection and growth) ecological (biotic and abiotic factors), and social aspects of the gardening process, such as interaction with other farmers, extension agents, and scientists.

*Food Gardens for a Changing World* offers unique and practical insight into how urban gardening can alleviate food insecurity and other problems affecting the urban poor. In a step-by-step manner, Soleri, Cleveland, and Smith show how the proliferation of urban agriculture among amateur farmers, supervised by extension experts and knowledgeable community elders, yields dividends for all concerned. The book is written in response to changing dynamics in the global food system (land, climate, population growth, rural exodus) and public health emergency (diet-related diseases such as diabetes, obesity, etc.). It uses examples from across many agro-ecological zones, from Mexico to the U.S. to Ghana.

The book consists of 10 chapters, organized into three parts. Part one consists of three chapters providing a big picture about food gardens—the socio-economic, ecological, cultural, and health benefits to a community. Part two is made up of three chapters that give specific practical advice, such as starting the garden, basic plant biology, and management and propagation under various gardening scenarios. Part three consists of four chapters on general garden management principles and practice, including material on soils, pests, and seed conservation. The chapters reflect expert indigenous knowledge from the locals and scientists in formal and informal settings, at individual or institutional levels where sustainability and social justice are part of the final equation. This is another hall-

mark of the book. Each chapter has website resources and references, with a combined bibliography at the end, including an index to facilitate information retrieval. The book also contains lots of figures and illustrations to facilitate learning and comprehension.

Many books have been written on food gardens and urban agriculture. None weaves a compelling and practical gardening research narrative into an ecological and social context following the garden's evolution to the selection of diverse seeds suited to the environment to prosocial behavior and social justice dimensions as *Food Gardens for a Changing World* does. The book is an engaging and comprehensive gardener's handbook and reference textbook that contains innovative agricultural ideas with examples and illustrations that facilitate immediate implementation. The examples are taken from across the agro-ecological zones, hence its global appeal as a universal handbook for advanced high school and college students taking courses in sustainable food systems or agroecology. An agricultural enthusiast could read the book in order and apply as needed, while practitioners, agricultural extension agents, or Master Gardeners may use the chapters in any order as needed for application at whatever stage they are in the gardening or instruction process. For more global appeal, it would be wonderful if the book were translated into other languages such as Arabic, Chinese, French, Portuguese, and Spanish.

This is a book for the times because food security is a major global concern. There is a need to improve on and diversify the channels of food production using all available spaces, including those in urban areas. I highly recommend this book to public and private schools, academic libraries, and individuals interested in gardening and food security issues and environmental and social justice. 

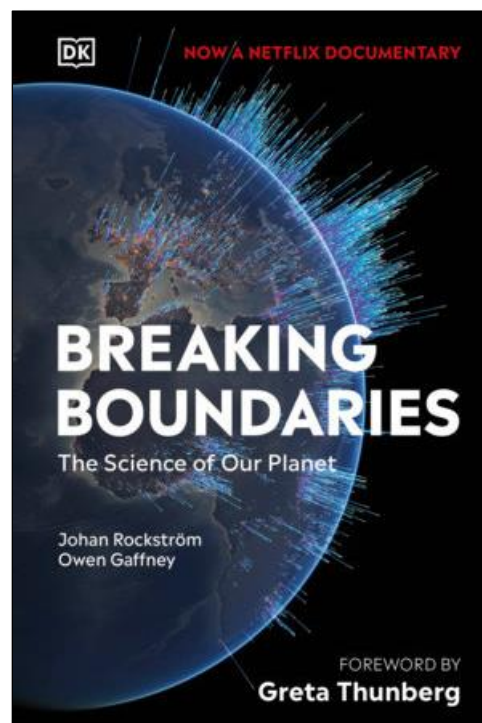
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## Food production and Earth's limits to growth in the Anthropocene

Review by Bruno Borsari \*  
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Review of *Breaking Boundaries: The Science of Our Planet*, by Johan Rockström & Owen Gaffney. (2021). Dorling Kindersley. Available as hardcover, Kindle, and audiobook; 240 pages. Publisher's website: <https://www.penguinrandomhouse.com/books/659581/breaking-boundaries-by-johan-rockstrom-and-owen-gaffney/>



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Agriculture is the human activity that is acting as a major planetary force in the Anthropocene. Although the authors of *Breaking Boundaries: The Science of Our Planet* dedicated only one chapter

to food production (Chapter 11), they contended that four of the nine planetary boundaries within which humanity operates have been overcome by agriculture. The book is organized into three acts or sections. Act I contains four chapters describing keystone events that shaped our planet. It describes a lifeless origin dominated by geophysical processes to the onset of life and the changes brought about by photosynthesis, which spurred aerobic life and multicellular organisms. Earth is a complex system undergoing continuous changes, yet it evolved self-regulating mechanisms to regain homeostasis from disturbances (Chapter 1).

A brief history of climate change with an emphasis on the mystery of ice ages during the

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mid-19<sup>th</sup> century is reported in Chapter 2, where readers learn how carbon and its concentration shifts shaped the climate through geologic eras, despite the skepticism of the scientific community at that time, until 1941. In that year, Serbian scientist Milutin Milankovitch published *Canon of Insolation of the Earth and its Applications to the Problem of the Ice Ages*, which convinced the scientific community that the link between ice ages and warm interludes, or interglacials, have to do with the tilt and wobble of Earth's orbit around the sun. The swings of global temperatures during glacial periods fostered brain evolution in our hominin ancestors and selected for social and cooperative behaviors (Chapter 3). In Chapter 4, readers learn about the Holocene epoch, which for 12,000 years maintained a relatively stable climate. These conditions spurred the agricultural revolution and the rise of civilizations. The authors conclude this chapter by emphasizing that since 1950, humanity has entered the accelerating phase of the Anthropocene (a new geologic event, where human activities act as geologic forces that threaten the self-regulating mechanisms of our planet) (Kunns, 2021). Act II presents the science of this acceleration as cause for replacing the stability of the Holocene with the uncertainties of the Anthropocene, thus justifying the call for declaring a planetary emergency.

In Chapter 5, the case is made to demonstrate the reality of the Anthropocene, and emphasis is placed on describing exponential growth, a hard-to-grasp concept (e.g., the lily growing in the pond). Then, the authors introduce the boundaries as keystone constructs that humanity should consider to avoid Earth going past four critical tipping points (social, political, economic, and technological) (Chapter 6). Otherwise, a domino effect could generate a cascade of uncontrollable events, from sea-level rise due to melting glaciers and increasing atmospheric carbon leading to droughts, floods, forest fires, crop losses, and displacements of people. This urgency demands a global action plan to constrain human activities within the planetary boundaries (Chapter 8).

Act III is where the authors present various strategies to establish a renovated relationship with Earth. This narrative begins in Chapter 9, by legiti-


mizing the need to improve stewardship by 2030. "The Energy Transition" is the title of Chapter 10 to highlight a priority issue that led to the COP21 agreement of 2015, to reach zero emissions by 2050. Agriculture is heavily implicated in this issue, because 40% of gas emissions derive from this sector of the global economy. Agriculture continues to operate beyond the land and water uses and nutrient (nitrogen and phosphorous) boundaries, thus acting as the leading force that has almost converted Earth into a behemoth farm. In 2050 the human population is estimated to reach 10 billion and the authors (like many agricultural scientists) support an intensification of farming to fulfill the food needs of a growing population (Chapter 11). They suggest precision farming approaches like water use efficiency, biotechnology, smart agriculture, and selecting livestock species to make agricultural enterprises sustainable.

However, without any further explanation, these approaches aimed at solving the challenges of agriculture appear inadequate and unattainable. The authors did not consider the relevance that agroecology and agroforestry have among peasant farming communities around the world in supporting local food production while conserving the biodiversity that industrial agriculture continues to extirpate from the landscape through monocultures and confined animal feedings operations (CAFOs). For these reasons, the planetary diet that was proposed by the EAT-Lancet Commission as a way to improve both human and global health, although justifiable and necessary, may not yield its full benefits if agriculture remains industrialized and subservient to highly centralized food systems. People have been producing food for 10,000 years, and they should maintain the opportunity to do so instead of being removed from the land as a few mega-corporations seize the exclusive right to farming. Agroecology is sensitive to the social and political issues of agriculture. Its benefits have become transformative and synergistic to sustainable development, where this movement has grown (Borsari, 2011).

The chapters that follow tackle inequalities (Chapter 12), urban development (Chapter 13), human population growth (Chapter 14), and technology, from artificial intelligence to geo-

engineering (Chapter 15), the economy (Chapter 16), and policy-making (Chapter 17). The imperative remains steering human activities through the science-based framework of the planetary boundaries by the end of this decade to avoid Earth reaching the four critical tipping points (Chapter 18). The authors conclude by reiterating that humanity is still far from achieving sustainability. However, science shows that we can restabilize Earth within the next 30 years if we remain committed in the 2020s to returning to operating within planetary boundaries. This is the trajectory to fol-

low if we wish to leave our children and grandchildren the stable, resilient planet they deserve to inherit (Chapter 19). The book is enhanced by color plates that illustrate concepts and data from the chapters. Forewords by environmentalist Greta Thunberg and United Nations Secretary-General António Guterres reiterate the urgency for action to resolve our complex planetary crisis. The book is not free of limitations, yet it is relevant and persuasive. It is an inspiration for restorative actions and a celebration of what has been achieved already. It is a must-read!



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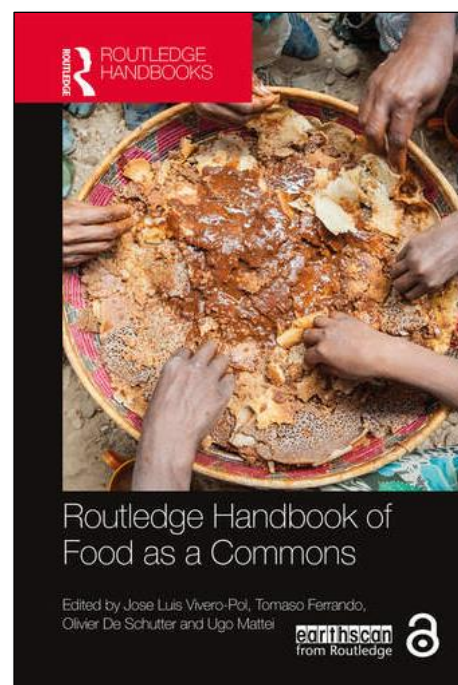




## Remembering the commons and reinvigorating them

Review by Krishnendu Ray \*  
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Review of *Routledge Handbook of Food as a Commons*, edited by Jose Luis Vivero-Pol, Tomaso Ferrando, Olivier De Schutter, and Ugo Mattei. (2019). Routledge. Available as hardcover, paperback, and eBook; 424 pages. Publisher's website: <https://www.routledge.com/Routledge-Handbook-of-Food-as-a-Commons/Vivero-Pol-Ferrando-Schutter-Mattei/p/book/9780367628567>



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The *Routledge Handbook of Food as a Commons* proposes a normative view of what food ought to be, in the process highlighting instances where and when that potential has been actualized. Food currently is an object to sell and extract private value rather than social sustenance. This book proposes that food be reconceptualized against its

long liberal and recent neoliberal history as property, making a persistent argument about decommodifying food in 24 detailed chapters. It is in recommending that the more than two dozen authors of the book—many of them leaders in their field—find better, alternative ideas about the right to food, global public good, food justice, and food

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sovereignty. They highlight how food as a commodity is currently characterized by its tradable features (appearance, calorie, price, packaging, purchasing power, taste, etc.), thereby denying its non-economic values. It asks two central questions: what would good policies look like if we build on the assumption that food should be the commons, and how do we get there?

The book has five substantive parts, each four to five chapters in length, along with an introduction and conclusion. Part I, “Rebranding Food and Alternative Narrative of Transition,” outlines the main normative and empirical arguments for conceiving the commons, as well as multiple understandings of the commons that have emerged among academics and activists. It lays out perspectives on food as a commodity, commons, public good, private good, and right. It identifies “commoning” as articulated by academics, activists, and commoners (the last one, a clever and useful turn of phrase) as the thing to do. The understanding of commons is multiple and phenomenological (meaning developed in varieties of local communities from the inside out). Here we learn how the food system comprises numerous commons—water, soil, labor, infrastructure, and landscape—before closing with a systematic discussion of economic conceptions of a public good. One chapter develops the feminist theory of “commoning” as care-work, by way of French Regulationist conception and Emmanuel Levinas’ other-oriented ethics. Another develops the possibility of an open-source agricultural revolution, with the state playing the role of a partner, although it is unclear how such a state might emerge in the context of lobbying and class interest. This first section underlines both the strength and weakness of this volume. It goes off in multiple directions without seeking a theoretical straitjacket, yet the chapters are additive, either listing one empirical case after the other, or one conceptual argument over another. A reconciliation, or at least critical argumentation between them, could have been attempted at the end of the volume.

Section II builds upon Karl Polanyi’s conception of the embeddedness of the market, Amartya Sen’s entitlements, and E. P. Thompson’s moral economies to develop an argument for developing


solidarities to meet human needs. One chapter reaffirms the goal and the pathway to community-based commons based on a rights system, making charity unnecessary. Another chapter argues about gendering questions of care and the case for cultural integrity by way of the use of human milk. This section closes with an outline of an argument about the commodification of food through the postwar food regime and development of the neoliberal framework, eventually leading to the financialization of food markets. By this point, the book will begin to feel repetitive to the reader.

Section III takes us to the most interesting instances of “commoning” that exist in the world today. It shows how traditional agricultural knowledge, in one instance in Northeastern Spain, belongs to the commons, as does scientific knowledge produced in public institutions under which the whole hybridization program developed—and which has been undermined by the privatization of new knowledge in U.S. universities, and how that can be reversed. A surprising chapter on gastronomy shows how culinary knowledge was privatized on behalf of class and gender with neocolonial consequences. The next chapter, on seeds in the context of the International Treaty on Plant Genetic Resources, gets specific on the problems of governance and collaboration. The section ends with a generative chapter on “commoning” air, water, and food in South Africa that I found promising, allowing the reader to exit the world of mostly Eurocentric instances so far in the volume (in spite of gestures toward Latin American peasant and urban movements). That credential is deepened in Part IV with work on the agroecology movement in Cuba, civil society organization in Canada, waste in Ireland, and self-provisioning in central and eastern Europe. Part V broadens those instances to raise questions about the complicated relationship between food sovereignty and “commoning.” Taking the instances of the UK and Italy, more specifically community supported agriculture operations (CSAs), cooperatives, and green spaces in the UK and the Mondeggi Bene Comune in Italy, the authors highlight the long dialectic of privatization and socialization that undergirds much of European agriculture. This is also the section where we learn about civic food networks and real



utopias. It reminds us of the forgotten world of the commons in the West. We are urged to recall that one-third of the food produced is wasted and that 40% of unwasted food is fed to livestock and used for biofuels. Private ownership of food-producing land, naturalized in the dominant discourse, is not in fact common in many parts of the world, where over 2.6 billion people live off forests and drylands managed in common. The Food and Agriculture Organization of the United Nations (FAO) estimates that about 500 million hectares around the world are dedicated to heritage agricultural systems managed in mixed proprietary systems, including 5% of European Union land. In addition, about 30% of all forest lands are managed by communities. The whole volume is bristling with instances such as the Food Commons in California, the Food Policy Council in Cork, and the Walloon Network of Local Seeds. That is the strength of this volume as a teaching and advocacy tool. Nevertheless, there are important limits.

The language and organization of the volume can be an impediment. The opening paragraph, for instance, rings every leftish ideological bell with reference to the end of history, neoliberalism, the Anthropocene, and the Capitalocene in making the argument that we have witnessed the commodification of food, air, and water. Accurate prognosis is sometimes coded in turgid language reeking of

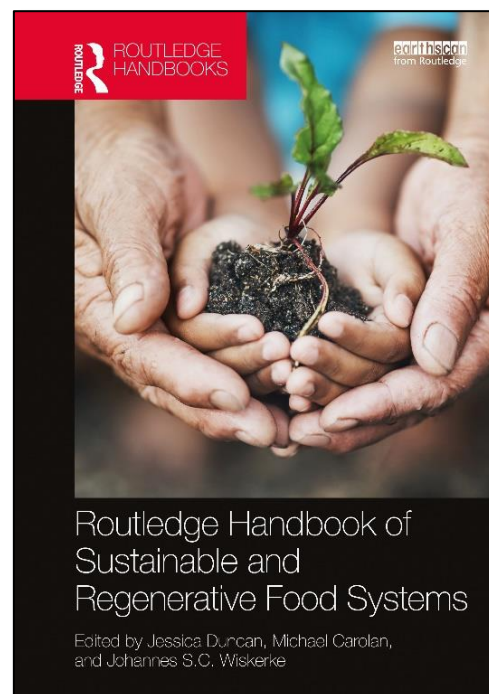
graduate school classrooms and activist meetings. This book will affirm the faith of those who already believe in its arguments, examples, and evidence, such as this reviewer, but by the first page, you realize you have to be an insider to read the next 400-odd pages of text and figures. I am quite sympathetic to its conceptualization and politics, but the book raises concerns about whether this was the best way to organize it. It might have been strengthened by opening it with empirical alternatives, and then moving to the bigger, more abstract, conceptual and critical questions. The editors could have been firmer in eliminating redundancies and repetitions. Finally, it is too persistently critical and not creatively compositional enough. “Commoning” is a verb, and too much of the book is given to critiquing as a mode of doing, especially in the first two-thirds of the volume, rather than showing the reader successful instances of what is being done to get there. It is more successful in breaking things down than building something new and interesting. That might be partly because the volume is too ambitious in hoping to rebuild everything all at once. Yet, that does contribute to its ideological clarity, strengthening its potential for pedagogical use in graduate courses to illustrate the point of view of those interested in turning food from a commodity to the commons. 



## Is “sustainability” still relevant to food systems, or do we need a new term?

Review by Molly D. Anderson\*  
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Review of *Routledge Handbook of Sustainable and Regenerative Food Systems*, edited by Jessica Duncan, Michael Carolan, and Johannes S. C. Wiskerke. (2020). Routledge. Available as hardcover and eBook; 478 pages. Publisher’s website: <https://www.routledge.com/Routledge-Handbook-of-Sustainable-and-Regenerative-Food-Systems/Duncan-Carolan-Wiskerke/p/book/9781138608047>



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I looked forward to reading the *Routledge Handbook of Sustainable and Regenerative Food Systems* because I greatly respect the work of its editors and wanted to know how they would organize such a vast topic. It hardly needs repeating that

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today’s dominant industrialized food system is destroying biodiversity, degrading soil and water, emitting greenhouse gases, creating products that cause diet-related diseases, erasing traditional farm livelihoods, and destroying farm communities. Despite ample documentation of the problems and wide agreement on their existence, the solutions are much more contentious. What are the alternatives to the destructive industrialized food system, and what is the best trajectory from current practices to a better future? I hoped that this book would provide solid answers.

To some extent, my hopes were met. The *Routledge Handbook of Sustainable and Regenerative Food Systems* is a smörgåsbord of intriguing topics

and new perspectives on alternatives to the industrialized food system that links social and ecological aspects. You can dip into any of the chapters and find useful insights into the prospects for creating a better food system. Authors most often come from industrialized countries (Canada, the U.S., E.U., and U.K.). Still, a generous number of contributions come from people working in Latin America (Brazil, Bolivia, Peru, and Costa Rica), Indonesia, Kenya, Tanzania, Australia, India, and Japan. Several chapters deal with Indigenous food systems and are written by people with appropriate backgrounds, i.e., scholars who are Indigenous themselves or are actively engaged with Indigenous communities. The authors are often well-established in their fields, but there are newer scholars (Ph.D. candidates, postdocs, and assistant professors). The editors selected from a wide array of geographical and disciplinary expertise to assemble this cast of contributors, and it is a pleasure to hear from new scholars and regions that are often less well represented in work on sustainable food systems. Each chapter concludes with discussion questions and suggestions for further reading. The index is unusually comprehensive and will help readers find sections of the book dealing with topics that interest them.

My biggest challenge in reading this book is that it lacks a strong organizing framework. The 29 chapters following the introductory chapter by the editors touch on decolonization and Indigenous livelihoods, governance, labor, finance, entrepreneurship, markets, commons, digitalization, food waste, and more. In their introductory chapter, the editors discuss six dynamic and cross-cutting principles that are central to advancing regenerative food systems: (1) acknowledging and including diverse forms of knowing and being; (2) taking care of people, animals, and the planet; (3) moving beyond capitalist approaches; (4) commoning the food system; (5) promoting accountable innovations; and (6) long-term planning and rural-urban relations. The editors may have resisted clustering papers and creating subtopics because they wanted to emphasize that these principles are interrelated. Still, clearer signposts throughout the book of which principle is foremost in each chapter would have helped. While

each one connects with at least one (and usually several) of the principles suggested by the editors, the flow from one chapter to the next is often unclear.

Many authors grappled with the meaning of regenerative food systems and how the activities that they study fit within it. Some authors (e.g., Sbicca writing about labor, Stephens and Clapp writing about financing, and Ferrando writing about commoning) addressed these questions directly, but others had less connection with them. Given that regenerative food systems still lack a commonly accepted definition, and the concept of regeneration in agriculture has been co-opted to mean many things (just like sustainable agriculture), hearing how diverse authors define it, think it can be enhanced, and understand its relevance to overcoming specific problems with industrialized food systems would have been useful. Chapters that dealt with the connections between regeneration and food system activities or concepts beyond food production were especially interesting, since “regenerative agriculture” in popular media often refers only to food production, as in the recent *Kiss the Ground* documentary, and does not necessitate other food system shifts.

This book has dual functions: first, encouraging readers to think about the entire food system beyond agriculture, and second, applying concepts and principles of regeneration to various food system activities. The editors see regeneration as a “step beyond sustainability” (p. 9) that better reconciles relations between the social and the environmental and focuses less on maintaining systems or simply doing less damage and more on enhancing the ability of living beings to co-evolve in ways that allow for diversity, complexity, and creativity (p. 4). They rightly point to the unsatisfactory nature of “sustainability,” a term that has elicited broad agreement on the United Nations’ Sustainable Development Goals yet has been co-opted by interests that want to tweak business as usual rather than seek deep structural and social transformations. The *Handbook of Regenerative Food Systems* might have been a more appropriate title since most chapters connect with this more than with sustainable food systems. However, “sus-

tainability” remains a compelling and salient goal for many authors, particularly at the global level.

Chapters from this book are suitable for undergraduate and graduate audiences and anyone trying to better understand contemporary shifts in ideas for improving food systems. As a whole, the book is an impressive compendium

that will help readers understand how the concept of regeneration is infiltrating and re-invigorating thinking about food systems sustainability. It is unfortunate that Routledge has not released a paperback version, since the hardcover price will put the book out of reach of many readers.

