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Food as a Tool for Social Change

In Memory of Dr. Evan Weissman

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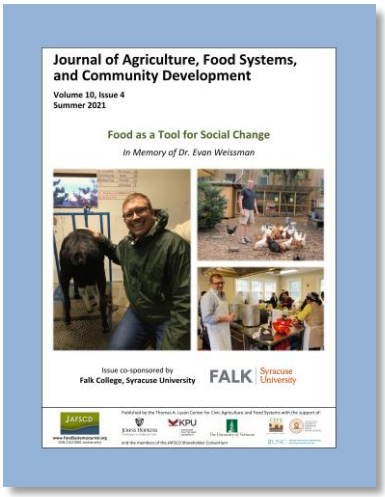

On our cover: Left: Dr. Evan Weissman with a goat in a milking stand on one of his many field trips to a local farm with his "Farm to Fork" undergraduate class. Top right: Evan at BK Farmyard during his dissertation research on urban agriculture in New York City. Bottom right: Evan assisting with the preparatory work for a semi-annual pop-up dinner event in Syracuse, New York, that featured a variety of cuisines from many of the New American chefs in the area. Evan frequently volunteered and also encouraged graduate students to help out with the event. *Photos provided.*

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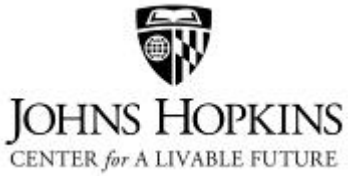
Johns Hopkins Center for a Livable Future 	**University of Wisconsin-Madison** Center for Integrated Agricultural Systems 
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EDITORIAL AND INTRODUCTION

Special issue:
Food as a Tool for Social Change

Food as a Tool for Social Change: Introduction to the special section

Special section guest editors:

Katie Mott
Syracuse University

Hanna Goldberg
CUNY Graduate Center

Maegan Krajewski
University of Regina

Will Cecio
University of Massachusetts-Boston

Cheyenne Schoen
United Steelworkers

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In this special section of the summer issue, we honor the work and legacy of the late **Dr. Evan Weissman,** who contributed tirelessly to the community of food scholars as an editor and reviewer for several journals, including JAFSCD; as a professor in the Department of Nutrition and Food Studies at Syracuse University; and as a collaborator with countless community organizations. As is illustrated in the tributes, commentaries, and peer-reviewed papers that follow, Evan imparted a strong belief that revolutionary food systems change is possible. The inspiration for this special issue's theme came from a recurring question that Evan asked his students and himself: "How can we use food as a tool for social change?"

We open with a few words from us, Evan's former **Syracuse University Food Studies graduate students,** to remember the many roles—as advisor, professor, and comrade—he played in our lives.

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Charting Evan's graduate school journey, his Ph.D. advisor in the Department of Geography and the Environment at Syracuse University, **Tod Rutherford,** remembers him most for his community-engaged scholarship and activism. He was a true "organic intellectual." Syracuse University colleague and dear friend **Zeke Leonard** emphasizes Evan's keen ability to see the potential in anyone, in anything—in even the inconspicuous or mundane. Colleague **Daniel Block** from Chicago State University reflects on the rarity of scholars like Evan, whose deep commitment to Syracuse led him to return to work in his hometown. Practitioner **Jessi Lyons** of Brady Farm echoes Block's sentiments, highlighting the way Evan, an atypical academic, understood his own positionality and resisted the extractive tendencies of academia in all facets of his career. In fact, one of his first major achievements was the co-development of **Syracuse Grows**, a nonprofit organization that supports food justice efforts throughout the city. Colleague and member of Evan's dissertation committee **Matt Potteiger** describes the experience of working with him on FoodPlanCNY, a comprehensive food system plan for Syracuse and Onondaga County. From the findings of FoodPlanCNY emerged the **Syracuse-Onondaga Food Systems Alliance** (SOFSA), and many of its members express their deep appreciation for Evan's invaluable contributions in their tribute. Evan's colleagues in the **Syracuse University Department of Nutrition and Food Studies** conclude our tribute section, reflecting on Evan's key role in building the SU Food Studies program and his unwavering dedication to scholarship, teaching, mentoring, and activism.

The tributes are followed by five insightful commentaries that draw attention to some of the concrete ways that food can be used as a tool for social change.

In *How Partnerships Shaped the Dane CARES Farm-to-Food Bank Program,* **Jessica Guffey Calkins** and **Claire Mance**, both practitioners at the University of Madison-Wisconsin Extension of Dane County, discuss the unique local food purchasing program the Dane County Food Bank began in response to food insecurity exacerbated by the COVID-19 pandemic. Their findings point to the important linkages between local agriculture and food banks in addressing food insecurity.

Next, **Chelsea Klinke** and **Gertrude Korkor Samar,** graduate students of anthropology at the University of Calgary, present *From Seed to Social Agency*. They draw on personal experiences farming in Calgary to ask how community-based experiential engagement in postsecondary food pedagogy can enhance student learning, bridge academic-public divides, and foster transformative social change.

We are then introduced to the work of **Cara Maria Santino,** a graduate of the masters program in Food Studies at Syracuse University, in the commentary *Recipes for Resistance: Practical Applications of Restorative Food Justice in New Haven, Connecticut.* Santino uses restorative justice and food justice frameworks to develop an initiative that focuses on the availability of healthy, sustainable, and culturally appropriate food for people returning from incarceration.

Next, we hear from **Karen Emmerman,** a professor of philosophy at the University of Washington, with **lauren Ornelas**, founder and president of the Food Empowerment Project. In *Setting the Table, Not Running It: An Inclusive Approach to Access to Healthy Foods,* Emmerman and Ornelas discuss Food Empowerment Project's people-centered approach, implemented to address issues of food access in California's Vallejo community.

The commentaries conclude with the work of **Maegan Krajewski,** a graduate student in social studies at the University of Regina and a former student of Evan in the graduate department of Food Studies at Syracuse University. In *Reflections on the North Central Community Gardens Branch Out Project,* Krajewski provides insight into the process of community garden expansion and contributes to an understanding of the possibilities, challenges, and impacts of community gardens in general and community garden expansion in particular as a counter-neoliberal food sovereignty practice.

In this special issue, we also present a number of original empirical and theoretical peer-reviewed papers on a wide array of topics that address the intersection of food studies and social justice.

First, **J. Robin Moon, Craig Willingham, Shqipe Gjevukaj, and Nicholas Freudenberg** use syndemic theory to evaluate the ramifications of the COVID-19 pandemic and its intersection with the more long-standing issues of food insecurity and diet-related diseases in the Bronx, New York. In *COVID-19, Food Insecurity, and Diet-Related Diseases: Can Syndemic Theory Inform Effective Response? A Case Study*, Moon and colleagues find that identifying commonalities between different health problems can strengthen both collaborative grassroots and government-driven responses.

Next, **Christina M. Kasprzak, Julia J. Schoonover, Deanna Gallicchio, Lindsey Haynes-Maslow, Leah N. Vermont, Alice Ammerman, Samina Raja, Laurene Tumiel-Berhalter, and Lucia A. Leone** further existing research on the operational practices of mobile produce markets in their paper, *Using Common Practices to Establish a Framework for Mobile Produce Markets in the United States*. Through semistructured interviews with established mobile produce markets, Kasprzak and colleagues find overlapping characteristics that could be used to develop a set of standardized practices.

We are then introduced to the work of **Kathleen Tims, Mark Haggerty, John Jemison, Melissa Ladenheim, Sarah Mullis, and Elizabeth Damon** in their paper, *Gardening for Change: Community Giving Gardens and Senior Food Insecurity*. Tims and colleagues find that a network of community gardens in Orono, Maine, functioned to support food access efforts for rural seniors and to destigmatize alternative forms of food access.

The peer-reviewed papers conclude with the work of **Chika Kondo,** a graduate student in the graduate department of agriculture at Kyoto University. In *Re-energizing Japan's Teikei Movement: Understanding Intergenerational Transitions of Diverse Economies,* Kondo uses a diverse economies approach to analyze generational shifts in leadership in Japan's *teikei* movement. Kondo examines how the community supported agriculture movement has overcome several political and economic barriers throughout its history.

This special issue would not have been possible without the support of Syracuse University's Falk College Department of Nutrition and Food Studies, the Department of Geography and the Environment housed within the Maxwell School of Citizenship and Public Affairs, and the kind and generous Rosenberg family. We are endlessly thankful for the mentoring and support we received from two of Evan's colleagues, Rick Welsh and Jonnell Robinson. To managing editor Amy and editor in chief Duncan, we thank you for your patience and trust throughout this endeavor.

With gratitude,

The "Food as a Tool for Social Change" guest editorial team:
Katie Mott, Maegan Krajewski, Cheyenne Schoen, Hanna Goldberg, and Will Cecio

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TRIBUTE

Special issue:
Food as a Tool for Social Change

Evan Weissman: Remembering our advisor, professor, and comrade

The Syracuse University Food Studies Graduate Students *
Syracuse University

Submitted February 2, 2021 / Published online September 16, 2021

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In the early spring of 2020, the Syracuse University community was dealt a sudden and painful blow with the loss of Dr. Evan Weissman. It is to his vibrant memory that this special issue of the *Journal of Agriculture, Food Systems, and Community Development* is dedicated. What follows are the reflections of the special issue's guest editorial team and our peers in the Syracuse University Food Studies graduate program—a program and department that Evan helped to create shortly after completing his own graduate education at Syracuse University.

Evan was the very reason many of us came to Syracuse University or stayed in the city to pursue our graduate educations. He was, and remains, a model for a particular kind of scholarship, which was the inspiration for the theme of this special issue. He was a community-engaged scholar in the truest sense, and likewise encouraged students to commit themselves to becoming active participants in food systems change. Moreover, he had an unwavering belief that this was something we *could* do, that if we were willing to put in the work, as he did all the time, we could play a part in working toward a more just world. Evan's commitment to his community and his deep belief that food could be used as a tool for social change have influenced many of us to undertake active roles in our own cities, be it managing a network of community gardens, overseeing an anti-poverty initiative, or fighting for workers' rights.

Talking with Evan, one thing that was immediately clear was his genuine curiosity about people—a much-needed antidote to an academic world in which students can feel overlooked to the point of being

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lost. Not surprisingly, much of this curiosity revolved around food, and everyone has an Evan story that involves his attempt to discover, or uncanny ability to remember, their favorite food. But of course, food was a mode of expression, and of connection. He met with a stressed advisee at a local restaurant and, remembering her love of cheese, made a plate of fried cheese curds appear on the table. Arriving back from a trip to Quebec, he surprised a homesick Canadian with her favorite north-of-the-border-exclusive Super Nibs and Hawkins Cheezies. Before cofacilitating a conference session with his anxious advisee, Evan calmed their nerves over lunch and was the first to celebrate them with drinks, dancing, and late-night tacos when the session turned out to be a success.

Beyond food, Evan viewed us not as one-dimensional graduate students, but as friends and intellectual equals. He made clear his understanding that life outside of academia presents its own set of unique challenges and hardships. When those challenges undoubtedly arose, he helped us however he could, whether that meant an extension on a paper or grabbing a drink to ease our mind. Missing a deadline or running late to a meeting meant very little to Evan—whether the offender was a student or Evan himself.

His concern was less for rules or procedure than for being fully present in each moment. In the middle of finals week, when papers and projects were due and everyone, including professors, were working past their limits, he took an overwhelmed student down to a local bar, bought them lunch and a beer, and watched the first half of a Champions League soccer match. Whether we wanted to talk to him about future career paths, how to tackle a research project, debate the moves the Mets made during the offseason, argue over whether Tottenham (his favorite soccer team) had the right pieces to win the Premier League, or catch up on the latest local gossip, Evan was there for us. Through these experiences, we got to know Evan beyond the great professor, researcher, and activist-scholar he was. We got to know him as simply a very good, and very funny, person.

As teaching assistants, we witnessed Evan's knack for teaching students from varying disciplines and backgrounds, with differing levels of interest and familiarity with the food system. He handled this dynamic beautifully, as he could articulate concepts clearly and keep his students' attention through project-based and community-oriented curriculum. Whenever the opportunity presented itself, Evan shared his dedication to and care for Syracuse, encouraging us to think differently about a city so often characterized only by its post-industrial decline. Through his Urban Food Systems course, he pushed undergraduate students to fully experience Syracuse, pairing students with nonprofit organizations to carry out mutually beneficial projects and develop students' understanding of the city beyond the University Hill. Through the Farm to Fork course, Evan broke bread with students and explored various farms in Central New York. He was unafraid of the more monotonous or unattractive tasks, such as demonstrating milking goats or cleaning up the kitchen when class ran over time, knowing that his efforts would provide students with the best possible learning environment.

The success of Evan's teaching style was clearly demonstrated by the sheer number of students, within and outside of the department, who visited his office to talk with him about a particular class reading, a research project they were involved in, how to become a food studies major or minor, or simply how to navigate college. Not only was Evan a role model we had the privilege to observe, but he also offered us countless opportunities to develop our own teaching skills. He encouraged teaching assistants to lead classes and review sessions before exams, learn the tedious art of grading, and participate in syllabus construction. Evan cared deeply about our growth both as students and future teachers. Many of us now model our teaching on his own—his ability to truly connect with students and discover what made them tick.

Another facet of Evan's teaching style was demonstrated in his graduate seminar, The Political Economy of Food. Although it was one of the more rigorous courses in the graduate program, he had a

keen ability to capture students' attention and transform complex, intimidating, and even mundane concepts into engaging, easily digested, and interesting material. Evan was a professor who thoroughly loved teaching and, even more, transforming his students into critical thinkers and future food system practitioners.

Evan was teaching this course in March 2020, shortly before his passing, and during the escalating coronavirus pandemic. He responded to the crisis in typical style, making it clear to students that he had no interest in overburdening them with coursework, and turned the seminar time instead into a regular meeting at which students, isolated in quarantine, could meet, share news, and discuss various Syracuse-based mutual aid and other efforts in which to take part. This, of course, was not atypical of Evan, who even under less extraordinary circumstances expressed genuine concern for students' welfare, carving out space during or after class to listen to distressed students. When an advisee was faced with grave health concerns, Evan immediately prioritized their health, finding every way to support them through their recovery and cheering them on at their eventual thesis defense. He was an anchor of the food studies program and our experiences within that program.

Evan was kind and, just as importantly, he was honest. He inspired rigor and dedication in the students he taught and advised. For many Food Studies students, Evan was the person we implicitly turned to for sound advice or thoughtful feedback. He still is, and for many of us not a day goes by that we do not find ourselves wanting to email him, or (as he much preferred) call him up, with a question or seeking some bit of advice. There were few instances when Evan did not have the perspective, answer, or solution we needed. Yet, even then, in those rare moments when Evan was also at a loss, his unwavering solidarity gave us hope.

It is this absence that is perhaps felt most keenly, and it is decidedly unfair that future students will not experience Evan's mentorship. Navigating the loss of our advisor, professor, and comrade has made more painfully obvious Evan's immeasurable worth, and it is difficult to imagine anyone as capable of shouldering his seemingly endless roles. More than that, however, is the simple fact that we miss him terribly.

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TRIBUTE

Special issue:
Food as a Tool for Social Change
FALK | Syracuse University

Tribute: Evan Weissman

Tod D. Rutherford *
Syracuse University

Submitted December 29, 2020 / Published online September 16, 2021

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It is very difficult for me to write this tribute to Evan. It is easy to find wonderful things to say about his life and work, but it still does not seem possible or right that someone as young, vital, and exceptional should no longer be with us. I will say that I had the great fortune to know Evan, serving as his Ph.D. supervisor in the Department of Geography and the Environment at Syracuse University from August 2006 until his successful defense of his dissertation "Cultivating the City: Urban Agriculture and the Agrarian Question in Brooklyn, New York" in January 2012. He entered our program having recently completed his MA in sociology at the University of Tennessee, and it was clear early on to me that he was a gifted, dedicated student. However, what really stood out for me was not just Evan's self-evident intellectual and scholarly abilities, but his dedication to community activism, combined with his genuine enthusiasm, generosity, and good-naturedness.

One of my great memories of Evan was visiting him in June 2010 while he was doing his field work in Brooklyn, New York. Evan took me on a tour of his study sites ranging from free-range egg production in Crown Heights to community agriculture locations in Red Hook. As we toured around Evan gave a wonderfully insightful commentary about how these constituted not simply isolated examples of urban agriculture but also served a very racially and economically diverse community. Furthermore, they constituted critical parts of a interdependent local production-consumption network, the highlight of which included the transfer of barley mash from a Red Hook microbrewery as feed to some very happy, if not slightly tipsy, Crown Heights chickens.

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It is not surprising, then, that even in a time when good academic positions were scarce, Evan received several tenure-stream job offers after his Ph.D. was completed. I was very happy that Evan got his position in the Department of Nutrition and Food Studies at Syracuse University. However, Evan was never an armchair scholar, but felt very strongly the need of a positive, progressive engagement outside of the academy. Thus he was the co-founder of Syracuse Grows, an organization dedicated to grassroot activism to promote better food security by and for Syracuse residents, and also of FoodPlanCNY, which promotes a more ecologically sustainable and socially equitable regional food system in central New York. As such, he was a happy exception to the essentially 'extractive' model characteristic of so much academic research, which often gives little back to the communities they study. In all senses of the term, Evan was an exemplar of Gramsci's 'organic' intellectual.

Evan's passing, then, is a great and irreplaceable loss to his students, the Nutrition and Food Studies programs, the university, and the wider Syracuse community. It is also especially tragic that he leaves behind a young family. However, I feel most fortunate to have known him for the time that I did. He leaves behind a profoundly positive legacy that will inspire new generations of food scholars, students, and activists.

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TRIBUTE

Special issue:
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Alternate harvest: Lessons in openness and connection

Zeke Leonard *
Syracuse University

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Abstract
This tribute remembers a dear friend and valued colleague through a project that we did together.

Keywords
Tribute, Harvest, Space-Making

On a summer day in 2012, I got a call from Evan Weissman telling me that a tree had fallen in the community garden that he helped found in our neighborhood. He knew that as a furniture designer and maker, I would have an interest in it.

As we stood and looked at it, we started to talk about possibilities, which of course, was a special skill of Evan's. This tree, an inconvenience in its current state, had a different identity to me as a furniture designer and maker: I commented on the fact that the trunk was straight enough that there might be good lumber in it and that we shouldn't simply chip it for mulch and buck it for firewood. Instead, we could work with garden members to treat it as any other garden offering: something to be harvested. Instead of food, however, the tree would yield material that could activate the garden as a public space (see Figure 1).

This idea of *harvest* as being relevant in non-food contexts was one that Evan and I shared. In a way, it is really a method of examining value constructs through the lens of praxis. Bernard Tschumi, one of

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the most influential architectural theoreticians, reminds us in his book *Event/Cities: Praxis* that praxis (as contrasted with practice) is identified by being constantly held accountable to those who, by using the space, will activate it (Tschumi, 1994).

It is this activation that has the power to shock us into rethinking existing value constructs: a weedy vacant lot is a potential source for community building and food production; a storm-felled tree is a potential furniture object to invite the community in; the act of designing and making that furniture is a potential intersection point for community members interested in creating positive change. The first step, of course, is to be open to recognizing these potentialities.

Figure 1. Maple planks leaning against the fence of the community garden.

This eye for *potential value* was one of Evan's great gifts to all of us that worked or played with him. I will remember him as being an especially open person in many facets of his life. What, after all, could a design professor offer to the academic scholarship of a food studies professor? As it turned out, we had quite a bit of overlap.

An article we were working on when he died pointed out that "community gardens necessarily engage in "resources responsive" design"; that is, that what is enacted in the space tends to be directly driven by its cost, either in dollars raised by members or in hours given as volunteers to the garden. Typically, in this kind of environment, any design process is engaged in an ad hoc process. For example, community gardeners will encounter a need for raised beds (due to contaminated soil, poor soil, or no soil), and the response is driven by a functional reality. "Design," in a formal sense, tends to emerge organically based on resources available, including human capital (labor and knowledge), environmental conditions, finances, etc.

Among the challenges facing this particular community garden was the navigation of "public" space available to passersby and "semi-private" space intended for use by the gardeners themselves. The gardeners had installed a public bed outside the fence around the garden as an invitation to the public to enjoy some of the fruits of their labor and inhibit theft, which was an ongoing problem. Evan brought up that it also made sense to create a public gathering spot, especially given the garden's proximity to a popular coffee shop and shopping district.

In collaboration with other garden members, we spent a couple of July Saturdays surfacing the lumber, cutting it to length, and using an inclusive, consensus-based process to design, build, and install a bench adjacent to the sidewalk, one that everyone walking by the garden would be able to use. This would be a bench that allowed the sitter to look inward to the garden or outward to the street. They could perch only for a moment or could lean back against the birch tree that the bench was built around, enjoying a summer afternoon and a cup of coffee (see Figure 2).

As we worked together with other gardeners to examine the shapes of the planks, to use the tools that surfaced them and drilled holes and installed hardware, I had the opportunity to watch Evan's deft hand with managing diverse voices and skillsets within a project. He worked with the cheerfulness and

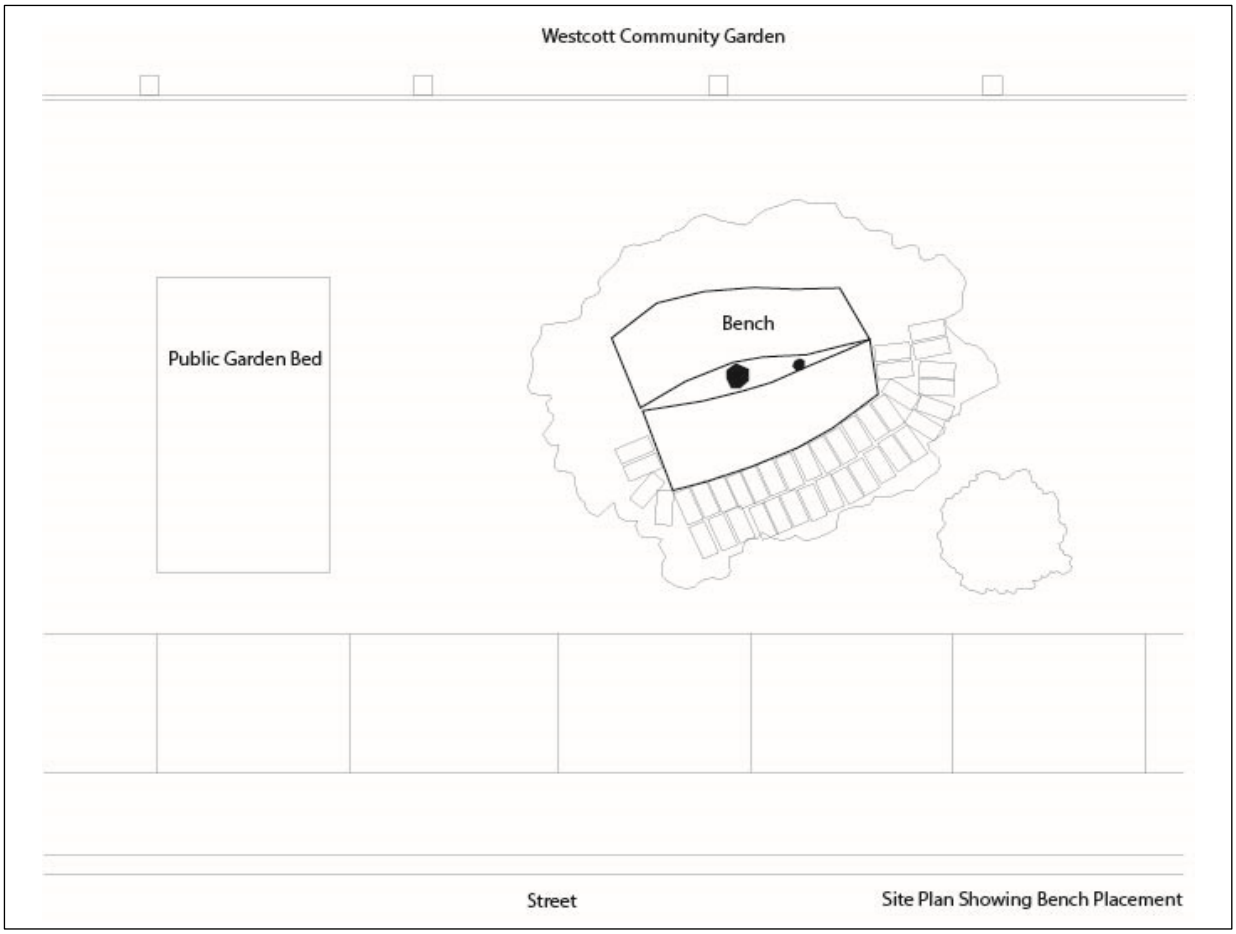

Figure 2. Diagram of the location of the bench.

Figure 3. Evan working on the bench in the community garden.

skill that we were so used to, being present in both the design and building processes (see Figure 3).

This was not by far the only project that we worked on together. Still, it was a memorable one for me, as it was a true intersection of our academic lives, overlaid onto our social lives in a way that was very much how I remember Evan: connections and overlaps were prevalent. Openness to possibility and a willingness (even a desire) to be right in the heart of everything were so central to his way of moving through life.

Harvest in this project had wide-ranging applications: we could harvest lumber from the tree, energy and involvement from the gardeners, and skill and expertise from Evan and myself. The yield was (and is) profound. I walk by this bench frequently (Figure 4), and it has become an unintentional memorial for me, a place that I can commune with Evan through an object that we both brought into being and placed in situ in a space that was also the fruit of labor of himself, his family, friends, and colleagues.

Figure 2. The finished bench in situ.

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Special issue:
Food as a Tool for Social Change

Evan Weissman: Food studies scholar and hometown scholar-activist

Daniel R. Block *
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In order to find a tenure-track job in their field, academics often must move far from their hometown and the university they graduated from. Evan Weissman was the rare academic who had the opportunity to stay at the university that granted him his Ph.D. and, even rarer, stay in his hometown of Syracuse, New York. He acknowledged the privilege of this situation in his remarkable article, "Privilege and Mistake Making in the Practice of Activist-Scholarship" (Weissman, 2018). In addition to stating his privilege as a white, male, able-bodied person, gainfully employed in a job that allowed him to follow his interests and do community-engaged work within the framework of academic freedom, he commented specifically on working in his hometown. He stated, "I am privileged to work and live in my hometown, where I have deep personal and political commitments. Because I live and work in my hometown, the traditional line between my identities and positions as community member and scholar are blurred" (Weissman, 2018, p. 1069). He went on to discuss the difficulty with attempting to be a scholar-activist without being seen as one or the other, particularly in a city such as Syracuse with an expensive private school located in a city with a large low-income population and a large degree of inequality, with a large town/gown separation.

I originally met Evan Weissman when he was a graduate student in the geography program at Syracuse. As a fellow geographer, activist-scholar, and food studies scholar, I actively followed his career. I later had the honor of serving as an outside reviewer for his tenure case, for which I explored his academic articles, his work as a teacher, and his service to his university, department, and community. Evan Weissman was the original hire in the Syracuse Food Studies program and focused much of his

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academic life on building the program and supporting its students. His academic position meshed with his deep commitment to the city of Syracuse. His teaching and writing bridged his activism, which focused on building a more equitable and sustainable food system in the Syracuse region, and predated his appointment to the Food Studies program. In 2007, he co-founded Syracuse Grows, a local food justice organization, and was heavily involved with a wide variety of food systems planning and food justice efforts in Syracuse (Hicks, 2020). His activist and academic worlds were difficult to separate. His Ph.D. was from the geography program at Syracuse, which is known for Syracuse Community Geography, a leading center for scholar-activist research, including work on food justice in the Syracuse area. He applied this training to academic and activist work, acting as a link between students, the Food Studies program, and the Syracuse food justice community, often integrating students into activist work and linking community organizations to university resources, for instance, in a study of mobile food markets in the Syracuse area (Robinson et al. 2016).

Evan Weissman's writings and everyday work were grounded in three characteristics that boosted his department and community: a strong devotion to his community and program; a combination of a critical perspective and a sense of kindness; and a sense of humility and introspection about his research. The idea that a food studies program could help boost both interdisciplinary cooperation within a university and cooperation between the university and community was prominently featured in an article describing the development of the Syracuse Food Studies program (Weissman et al., 2012). The combination of a critical perspective and kindness is apparent in much of his writing, particularly in his dissertation and a later article based on it, which focused on urban agriculture youth programming in Brooklyn, New York. Weissman argues that these programs in general follow accepted neoliberal pathways by focusing on job and entrepreneurship training. At the same time, many projects also include political organizing. Taken together, he is able to criticize the system in which both for-profit and not-for-profit urban agriculture projects must work within the neoliberal norms in order to survive, but also show empathy and respect for the programs that have to balance between liberation goals and the choice they make within the neoliberal U.S. economy (Weissman, 2015).

Perhaps the core of Evan Weissman's research philosophy was in turning a critical eye to his own work in addition to the work of others. His article "Privilege and Mistake Making in the Practice of Activist-Scholarship" is truly a great example of how to be an introspective yet humble scholar, working toward making actual improvements in people's lives. The article starts with Evan making an ill-advised joke during a presentation to a group of inner-city youth at a dairy farm. The reaction to this joke, as well as misconceptions he feels he had regarding youth interest in a photovoice project, point out to him his privileged position as a white man in Syracuse, as well as a professor and a leader in the local food movement. He then uses feminist scholarship to think about how he could do better, through reflexivity, awareness of his positionality, and promoting the voices of the community members he worked with (Weissman, 2018). Evan wrote about learning that his status as an experienced and accomplished professor and local food activist, and doing activist-scholarship in his hometown, had made him overconfident and lacking in understanding that despite his being a "local," the attitudes and experiences of the predominately Black youth he was working with were very different from his own.

Evan Weissman's gift was that he was able to see the issues in this work, act on them, do better, and continue to devote himself to activist-scholarship, to teaching and advising students, and to keep doing all of this with confidence. The combination of critical viewpoint, kindness, confidence, and humility he brought to the research he completed are great examples for both aspiring and experienced scholar-activists. His death is a huge loss to Syracuse and the greater community of food studies scholars. His work will continue to be studied by students and scholars for years to come.

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Special issue:
Food as a Tool for Social Change

An academic for the people: A tribute to Evan Weissman

Jessi Lyons *
Brady Farm

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Academics have a habit of viewing communities, especially those facing extreme need, as willing subjects to be researched. Places to continually insert field trips and big questions so that students can get degrees and professors can write papers and get tenure. In a city like Syracuse, where we have multiple universities and nationally high levels of negative indicators of well-being, academics pose a quiet and grave threat to the morale of citizens. Being studied, semester after semester, without meaningful change or benefit from those efforts, only feeds civic hopelessness and encourages students to view communities as "other than" themselves, instead of something they are part of.

Evan Weissman was the antithesis of that sort of academic. Maybe not always, but he admitted when he saw his intentions were misplaced. As a researcher, Evan was willing to put himself in authentic relationships with the community. He listened, and was willing to be chided, because he knew there was truth that he hadn't heard yet. To sit at the table with elder gardeners, with farmers and businesspeople, and with people who were superficially completely different than one, requires one to be more than an academic. It requires nerve, patience, a tender heart, and the humility to listen to the wisdom of others more than academic theory. Listening and placing himself and students in reciprocal relationships within the community were part of what made Evan's work so profound.

At the Brady Farm, in Syracuse, Evan would approach me with questions or a possible proposal. Yes, it was rooted in theory, but it was more importantly rooted in years of listening to the community that he immersed himself in. And he always asked how the work he proposed, or student research, could be beneficial to us. Community gardeners had his phone number, and he worked hard to make sure that

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his place in academia translated into something useful for them. Nothing was ever just a paper; it was people and communities that he was attached to. Whether it was looking at a food system, or the washing space on a farm, Evan made sure his work created tangible value.

Two of Evan's students joined us at the farm as interns in different years. They were paid in academic credit, and hopefully walked away with meaningful knowledge and experience. Anyone who mentors an intern knows that it takes work to have one. These interns labored alongside the farm staff, doing all of the hard work required on an urban farm, and yes, we appreciated the labor. With Evan's help, their time wasn't simply checking off a box doing farm labor for credit. They thought critically about the work and the implications of labor costs, food safety standards, and customer preferences on the big picture of urban agriculture as a movement. Similarly, when Evan used our farm as a focal point for his class, the students were required to be immersed in the farm experience. It wasn't enough to visit and write a paper—their effort was required to directly benefit our farm by the end of the semester. We spent time with individual students and groups, on multiple occasions, and walked away with a farm safety plan, a value-added processing plan and toolkit, and interpretive signage.

I'll always appreciate the students he assigned to work with us, and the interns who gave up their summers for class credit. However, my favorite memories will be shoveling compost with Evan and our friends at Syracuse Grows, in all weather, and with little thanks. The annual resource drive to support community gardeners occurs around Earth Day (April 22). In Syracuse, that means it's generally snowing. And in 11 years, we only had one sunny day. Evan always brought an unflinching willingness to be there, to be the one to lend a hand and not leave anyone behind. He knew that some gardeners would forget to show up, and that he'd spend the day shoveling in sleet or snow. Even when we knew the aggravations that could come with the day, he brought warmth and comradery that made the day feel special and bonded us all together, uplifted by good work done together. He always had the biggest smile on those days.

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Special issue:
Food as a Tool for Social Change

A tribute to Evan Weissman from Syracuse Grows

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Jen Pauley,[e] and Mable Wilson [f]
Syracuse Grows

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When we reflect on the tremendous impact that Evan Weissman made on Syracuse Grows, our most enduring memories come from the annual "Resource Drive." Syracuse Grows, an all-volunteer nonprofit organization dedicated to food justice in Syracuse, New York, hosts an annual one-day event when we mobilize the resources of our entire Syracuse community to support the city's community gardens and urban farms. The event is held each year in April when, as anyone familiar with Syracuse weather will tell you, it could be raining, sleeting, hailing, snowing, or all of the above! Regardless of the weather, it's the perfect time to ready our city's community gardens and farms for spring planting. On this day, borrowed and rented pickup trucks haul compost, mulch, and manure across the city in ragtag caravans, serving what has blossomed into a network of more than 25 gardens and 3 urban farms. Gardeners stand at the ready to receive the black gold that is critical to growing healthy foods in a city where food insecurity is ubiquitous. Volunteers—young, old, Black, white, Syracuse-born, and New Americans—work side-by-side to transform previously vacant lots into spaces that provide nourishment

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Photo 1. Evan Weissman Working with Neighbors and Students to Build Raised Garden Beds at the Syracuse Northeast Community Center in 2015

Photo courtesy of Syracuse Grows.

Photo 2. Evan Weissman Grilling at the 2012 Syracuse Grows Harvest Dinner

Photo courtesy of Syracuse Grows.

and camaraderie. When it's time to break for lunch, volunteers with dirt-stained hands share in a meal, donated by local restaurants, and assess the day's progress. It's community building at its most authentic, and an event of which we are proud.

Evan relished the Syracuse Grows annual Resource Drive. Grinning widely, he dutifully reported to the volunteer assignment table each year, joyful to take on whichever task needed doing. During our organization's first Resource Drive, in 2008, Evan designed and led construction for the Westcott Community Garden, where he and his family now have gardened with friends and neighbors for over a decade. Some years he would tirelessly shovel compost into trucks at the Southwest Community Farm. In 2015, he enlisted his Food Studies students to help the Northeast Community Center build a new garden. He certainly was at home with a pitchfork or a hammer in hand. On many occasions, his three children were in tow. His kids are no strangers to Syracuse Grows harvest dinners, workshops, and fundraisers, each having participated nearly since their birth.

Although he reveled in the Resource Drive, as a founder and board member Evan understood that much of the work that goes into building a grassroots movement is thankless but essential. Whether he was facilitating a neighborhood meeting, registering Syracuse Grows with the IRS, or manning the barbecue at a community harvest dinner, Evan was willing to do the real work behind food activism. As a research professor at a private institution, he readily acknowledged his privilege—and then set about leveraging that privilege on behalf of the wider community. He finagled food preservation workshops in the university teaching kitchens and encouraged scores of students to connect food justice theory to practice. For Evan, food was the medium by which he brought people together to tackle injustice;

develop reciprocal relationships and mutual respect between community and university; and live out his own moral obligation to engage critically and deferentially in the intractable challenges of his community.

Syracuse is a more just and verdant city because of Evan. We will miss him each spring as we prepare for the growing season ahead. On behalf of our member gardeners and farmers, partners, supporters, and the board of directors, we wish to express our deep gratitude to Evan—for growing community with us, one Resource Drive at a time.

Photo 3. Evan Weissman Facilitating the Syracuse Grows Annual Meeting in 2010

Photo courtesy of Syracuse Grows.

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Trace and tribute: Evan Weissman

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Near the end of what was turning out to be a long Central New York winter and the beginning of an indeterminately long global pandemic, Professor Evan Weissman died unexpectedly. This sudden loss continues to be felt on many levels throughout the local community, as well as in the Syracuse University Food Studies and Food Systems Planning communities. Evan and I were planning to meet to start working on the final edits of FoodPlanCNY, a comprehensive food system plan for Syracuse and Onondaga County, New York. We had worked closely on this project for over three years, ranging from brainstorming the initial aims and objectives to all the hours of team meetings, interviews with stakeholders, writing, revising, integrating the process into our teaching, deciding whether the page format should have two columns of text or three, and more revisions. Completed in his absence, the project is now a trace that evokes Evan's unique synthesis of deep ethics, rigorous scholarship, and community engagement.

This FoodPlanCNY project is dedicated to Evan and all that he was dedicated to. Evan's background and commitment to social justice and a collaborative, cross-disciplinary, and community-based approach to food system planning guided the core of the project. He made fundamental theoretical connections. I had served on his Ph.D. committee, so I was familiar with his grounding in political ecology and qualitative participatory methods. However, what I will always admire are certain moments, such as in an interview or during a stakeholder meeting, when Evan would identify a difficult issue and

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initiate a dialogue that helped to reframe our understanding of it in a way that did not cast blame. His strong critiques of systemic inequalities reinforced his commitments to activism. He was also self-reflective and generous in his openness to different perspectives. We had many different ideas about the direction of the project, allocation of time and other resources, or how to conduct meetings, yet I could always trust his collaborative spirit.

Evan also brought people together. This is something integral to food and food systems work, and it suited him so well. His teaching style engaged students in various forms of community-based work that created new connections and networks. Students were involved in all stages and different levels of the FoodPlanCNY project, including translating the final recommendations into an action plan. Evan always had opportunities for students in mind and found several additional funding sources that helped to bring students into the process.

As the FoodPlanCNY project was wrapping up, he coordinated with public health professionals and other groups to strategize the next steps in the process beyond the final report. His effort was instrumental in helping to found and launch the Syracuse Onondaga Food System Alliance (SOFSA), a multisector food system organization with diverse community participation.

The work of SOFSA carries forward Evan's discussions with local organizations and government about how the whole process of food system coordination could be sustained and equitable. He felt it was important to engage some of the larger food producers in the region as well as those representing the interests of workers in those industries. Evan met these diverse, sometimes competing visions and dimensions of food system planning with fierce commitment and a big smile.

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Special issue:
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Tribute to Evan Weissman on behalf of the Syracuse-Onondaga Food Systems Alliance

On behalf of the members of the Syracuse-Onondaga Food Systems Alliance by:
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Mary Carney,[b] Independent Consultant
Brandy Colebrook,[c] Refugee and Immigrant Self-Empowerment (RISE)
Nel Gaudé,[d] Syracuse University Food Studies Graduate Program Alum
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David Knapp,[g] Onondaga County Legislature
Jessi Lyons,[h] Brady Farm
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Professor Evan Weissman was a driving force behind the formation of the Syracuse-Onondaga Food Systems Alliance (SOFSA)—a newly established food policy council based in the city to which he was so deeply committed. Evan was a tireless advocate for the need for coordinated efforts across the food system in order to achieve the transformational change he saw as foundational to achieving justice

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Rachel Viens, Director of Food & Nutrition Services, Syracuse City School District
Curtis Waterman, Hunter-Gatherer, Onondaga Nation Farm

for all. SOFSA's work will be just one of the many pieces of the enduring legacy of the life he lived and the values he held so deeply.

By building a robust network of partners across sectors, SOFSA aims to strengthen our local food system so that it works for all people in our community. We believe that the health of our neighbors and our environment are deeply intertwined. In order to ensure that both can thrive, we must dismantle the structural systems that drain resources from our community and the land on which we depend. Yet to do this, we cannot operate in isolation. We must pool our collective wisdom and amplify existing assets to catalyze the change we seek.

On April 6, 2020, just days before his passing, Evan and his colleagues published a special commentary in the *Syracuse Post Standard*. The piece, entitled "From farm to factory to table, coronavirus pandemic challenges US food system," articulated the ways our current food system has been stressed by the ongoing pandemic and called out the importance of food councils in responding to these challenges in both the short and long terms (Bellows et al., 2020).

> The COVID-19 pandemic lays bare the contradictions of the modern food system. We all now recognize—and have infinite memes celebrating—the critical social, economic and public health roles played by food supply chains and the workers, managers, business owners and firms that compose it and make it function. At the same time, the inequalities that define our food system are more apparent than ever: Workers in the food system are precarious, lack adequate pay and health benefits, and yet are asked to take risks to ensure food is available so we all can eat. … Promoting and supporting organizations and efforts to develop and expand local and regional food systems and local food policy councils could enhance our response to future disasters and bring needed environmental, economic development and food security benefits to our region and the United States. (Bellows et al., 2020, para. 1 & 5)

The stakes of our success or failure in our efforts to achieve food justice cannot be understated. We hold this knowledge closely each and every day as we pursue a vision for our community in which we all have the opportunity to thrive. Evan continuously imparted the awareness of this imperative for action in every aspect of his life and work.

This loss of Evan was sudden and tragic for everyone in our partnership and our community as a whole, causing far-reaching impacts to the many lives he touched. And yet, it has also translated into the fortified resolve to carry on Evan's unwavering dedication, striving to ensure equitable access to food in Syracuse and throughout Central New York. We have collectively committed—perhaps even more passionately now—to our work together and to carrying on in Evan's honor. We will be forever grateful for the ways we learned and grew as a result of his wisdom, the strength of his character, and his unwavering commitment to our shared ideals.

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Special issue:
Food as a Tool for Social Change

In remembrance of our colleague Evan Weissman: Scholar, community leader, mentor, and friend

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In the spring of 2020, we tragically lost our dear friend and colleague Evan Weissman, a food studies scholar and urban geographer, social justice advocate and activist, and renowned mentor and teacher. Evan was the first faculty member hired to start our intimate Food Studies Program, and an essential part of each of our individual careers and professional lives at Syracuse. It is difficult to impart the impact he had on our program, the discipline of food studies, and on us, as his coworkers and collaborators.

Evan's academic contributions, which focused on local food policy, community food systems, food system inequality, and urban agriculture, are beautifully reflected in this special issue. As can be seen here, the work he was engaged in has deep roots, which extend across topics and disciplines and continue to grow in his absence. His impact on the fields of food justice and sustainable agricultural and regional planning will endure, due to the ways he connected radical social theory and community-based practice.

As a faculty member, colleague, and advisor, he modeled thoughtful and purposeful scholar-activist research for his students and colleagues. He was an actively engaged member of the Syracuse food justice community on campus and off; a founding member of Syracuse Grows, a grassroots network that cultivates food justice through advocacy, education, and resources in support of urban food production; and

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a founding member of the Syracuse-Onondaga Food Systems Alliance (SOFSA), a multisector coalition of stakeholders from across the food system in Onondaga County.

His scholastic projects were not simply academic endeavors; they were deeply personal projects, which built upon his lifelong connections and relationships in his hometown of Syracuse, New York. Days before his passing, Evan won the prestigious Syracuse University Lender Center Faculty Research Award, which is dedicated to progressive, socially inclusive, and interdisciplinary projects promoting university-community relations. The Lender Center leadership reports that Evan's proposal to promote food justice in Syracuse through collaborative work with the emerging SOFSA was unparalleled by competing proposals. Working with Evan's colleagues in Food Studies and Geography, Lender has supported the proposal's realization, to identify best practices for including social justice in food policy councils based on examples around the country. The project builds upon a five-year, community-based participatory effort of food system planning in Central New York[1] to expand community capacity to address long-term public health, economic, and environmental impacts of the CNY food system and concurrently to offer direct student engagement in building and supporting diverse participation in SOFSA.

Following Evan's life-long commitment to social and racial justice, this project was designed to conduct this analysis from a critical justice lens, and to take seriously the race- and class-based food inequalities in our region. Working closely with local food-based organizations, Evan's vision to address food insecurity and inequality were central to this work. The project continues, with faculty and students maintaining the goals he outlined, with his memory as a constant guide.

In yet another example of his innovative and collaborative spirit, Evan teamed up with Dr. Harriet Brown in Magazine Studies and Dr. Anni Bellows in Food Studies to prepare and win a faculty grant to consider ways to expand interdisciplinary teaching of critical Fat Studies throughout the Syracuse campus. Today, the successful proposal is bringing together interested researchers from more than 12 disciplines to discuss and promote prominent authors in the very diverse directions that Fat Studies has taken. One objective is to identify common threads of interest and transdisciplinary development of the field.

Here at Syracuse University, Evan was well-known for his mentorship and special attention to students. He went above and beyond to support our students—always the professor to take a student out for a drink after a hard day, stay engaged in deep conversation, or let loose out on the dance floor after a day of conference-going. He offered his personal take on the food system and the world, connecting with students on an individual level. He listened to their experiences and offered mentorship from the specifics of professional endeavors to general musing on how to enjoy a good life. In recognition of this constant attention to students, he received numerous honors for his engaged community-based teaching, including the Syracuse University Excellence in Graduate Education Faculty Recognition Award, the Falk College Faculty of the Year Award for Teaching Excellence, the Syracuse University Faculty Sustainability Fellowship, a Teaching Recognition Award, as well as a Chancellor's Award for Public Engagement and Scholarship for his course, "Feeding the City."

On a personal level, Evan was in a unique position as an academic who also lived in his hometown. His pride in Syracuse, a rust-belt underdog city surrounded by classic agrarian imagery, shone through in the ways he made time to introduce newcomers, colleagues, and students alike to the community. He was the first one to recommend a great café or farm tour, always made sure everyone had explored our regional farmers market, and made it out to the most beautiful spots to swim and hike. His love for his city and desire to showcase its dynamic culture and livelihoods, was connected to the commitment he

[1] See http://www.foodplancny.org

had to creating a more just and sustainable food system—to ensure that the region was developing and progressing to its full potential, to benefit all who live here.

We will never know what else Evan had to offer us as a scholar, a mentor, and an activist. What we can hold onto, though, are the impressions and influence he made in both his published work and teaching. His vision for justice in the food system and in society at large continues to live through his students, collaborations, and vision for a more just food system and society.

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COMMENTARY

Special issue:
Food as a Tool for Social Change

How partnerships shaped the Dane CARES farm-to-food bank program

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Abstract
The COVID-19 pandemic forced Wisconsin's food systems institutions into rapid innovation as they responded to rising community food insecurity. With support from the Dane County Executive's office, federal relief funding eased previously onerous barriers to allow Dane County's largest food bank to implement a unique local purchasing program: Dane CARES. The program sought to support Dane County producers experiencing reductions in market opportunities, while feeding the rising number of Dane County families experiencing food hardship. Drawing on existing food and agriculture partnerships, Extension Dane County staff connected partners to assist with project expedition and documented partners' efforts through a series of semistructured interviews. The program achieved its two primary goals of replacing lost markets for local farmers and facilitating increased food distribution to communities in need. To elevate this multisector collaboration and inspire more great work like Dane CARES, we outline the evidence of program value to farmers' livelihoods, demonstrate the growth of partner networks to support institutional purchasing of local food, and offer recommendations to improve future program iterations.

Keywords
CARES Act, Collaboration, COVID-19, Emergency Food, Extension, Farmers, Food Bank, Food Pantries, Food Security, Pandemic

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Background

Wisconsin is known for its rich agricultural history. Dane County is home to the largest producer-only farmers market in the United States, which can draw tens of thousands of visitors, as well as local chefs, each week to Madison's Capitol Square to support its 150–170 vendors. In 2017, the county's 2,566 farms earned it a ranking of 97th among the 3,077 counties nationwide when comparing market value of agricultural products sold (U.S. Department of Agriculture [USDA] National Agricultural Statistics Service, 2017). Despite rich production statistics, more than 43 food pantries serve the 12% of Dane County residents experiencing food insecurity, 18.8% of whom are children (Public Health Madison Dane County, 2020; Wisconsin Food Security Project, 2020).

As the COVID-19 pandemic crept into communities across the U.S. in the spring of 2020, food insecurity rates increased, and institutions such as farmers markets, school meal services, restaurants, and emergency food centers were forced into a process of rapid innovation. With support from the Dane County Executive's office and eight million dollars in federal Coronavirus Aid, Relief, and Economic Security (CARES) Act funding, Second Harvest Food Bank of Southern Wisconsin embarked on a local purchasing program for the first time. Funding allowed the food bank to tap into the local food supply chain during a time of reduced donations and national supply chain shortages. It simultaneously secured support for Dane County producers experiencing reductions in market opportunities, while feeding the rising number of Dane County families experiencing food insecurity.

The emergency food system, while intended to provide short-term assistance during heightened times of need, has become a resource many people regularly rely on to meet their nutrition needs. Emergency food provides critical relief to stave off food insecurity, but has limited capacity in addressing the root causes of hunger or poverty. System-level change to address food insecurity requires innovative partnerships and reimagining the role of emergency food. Farm-to-food bank models have been successful in communities across the country. Dane County is unique in that it is highly agriculturally productive and the second most densely populated county in Wisconsin. Food system partners were highly encouraged to see an effort to connect growers and eaters in need at this scale, but it would be a huge undertaking. This was a first-of-its-kind project for Second Harvest, and implementation would begin within four short weeks of receiving federal funding.

Facilitating Connections

Prior to the Dane CARES project, Second Harvest faced onerous barriers to purchasing local food, despite seeing the value in it—barriers related to aggregation needs and adherence to donor expectations of meal equivalencies. The Dane CARES funding removed the purchasing cost barrier; the next step was to build out connections and systems.

Through a long history of collaborating on county-based food projects, Extension Dane County (a division of University of Wisconsin-Madison) has deep relationships with its food and agriculture partners, as well as a strong interest in connecting local food to Dane County residents and filling in food systems gaps. Extension has a primary role in the community to connect and convene partners. Subsequently, colleagues from Extension Dane County facilitated introductions between Second Harvest and a small group of local food experts to assist with expediting the project. These food experts included food advocacy nonprofits, farmers and produce aggregators, farmers market managers, and food pantry directors. Considering the depth of experience across these organizations and a strong will to see our food systems put to good use, these partners were well poised to collaborate on groundbreaking work.

Through a series of meetings, local food experts mentioned above provided invaluable information to the food bank about the inner workings of small farms, especially produce growers. Topics included planting and harvesting schedules, storage, delivery, farmers' use of technology, and language limitations.

They shared suggestions about software and ordering processes to employ, and provided critical insight about communication strategies, explaining the diverse set of circumstances in which farmers live and work. Importantly, this group of local food experts provided key contacts to produce aggregators that, in one case, expedited and streamlined purchasing from 24 farms. This was a major success from those initial conversations, and one that served to launch the procurement of local produce.

Among the many other partnerships that were formed to advance this project was one with Epic, a healthcare software company whose large campus was vacant due to remote work necessitated by the COVID-19 pandemic. Epic generously made available its kitchen facilities and pivoted its culinary staff to prepare, pack, and store CARES project food boxes for Second Harvest. Once the boxes were prepared, Second Harvest's network of dedicated food pantries allowed for streamlined distribution of the local produce, meat, and dairy products to families and individuals in need.

The enormity of this effort cannot be understated. Second Harvest Food Bank of Southern Wisconsin serves 16 counties, while the CARES funding supported Dane County only. Creating a new system that must function separately from typical operations is no simple task, but it serves as proof of what is possible when partners collaborate across sectors. The sustainability of this model could serve as a critical element in supporting a strong and resilient regional food system.

Evaluating Partner Impact and the Growth of New Relationships

Extension Dane County sought to elevate the story of this multisector collaboration and in turn, inspire more great work like this locally and around the state. To capture the experiences of the partners involved in this program, Extension Dane County colleagues conducted seven semistructured interviews with 12 partners. Interviewees included leadership from the food bank, a produce aggregator, executive directors from three local food nonprofits, a group of food pantry directors, and a farmer.

The aim of the interviews was to glean insights from their experiences to:

1. Gather evidence of the program's value to farmers' livelihoods in a time of crisis (this value would provide a case for the continuation of this program);
2. Demonstrate the growth of partner networks to support institutional purchasing of local food; and
3. Offer recommendations to improve future program iterations via increased stakeholder input.

This program was very successful in its two primary goals of replacing lost markets for local farmers and facilitating increased food distribution to address elevated food insecurity caused by the pandemic. A big development is that Second Harvest now has gained in-depth experience in local food purchasing—it has established relationships among produce growers and aggregators, cheesemakers, and dairy and livestock farmers. Second Harvest has also increased knowledge about managing federal funding, with systems in place to accommodate future federal funding to allow increased flexibility for local purchasing. Furthermore, some food pantries report building new relationships with farmers themselves. After months of accepting deliveries, the food pantries and the farms have a direct line to one another as an additional marketplace.

As with any new program, and especially one initiated on extremely short notice, there are areas of opportunity for future program growth and sustainability. Partners provided suggestions about how lines of communication could be strengthened and expanded. This could also entail food banks hiring someone with experience in food and farming, with specific experience dealing with seasonality, perishability, and post-harvest handling of crops. Doing so would streamline purchases, promote communication with farmers regarding planting and harvest schedules, and reduce potential waste.

Another consideration is to hire someone to give direct support to producers whose primary language is not English and/or to those with less technology proficiency. Dane County is home to a community of Hmong growers, 16 of whom vend at the Dane County Farmers' Market. If additional resources could be allocated, a greater diversity of local growers would be able to participate in the CARES program.

Conclusion

This pilot program laid important groundwork in relationship-building and creating systems that might not have come to fruition without the urgency of emergency circumstances. Partners expressed sincere appreciation for Dane County leadership in their decision to fund a farm-to-food bank project that was a clear win-win for both producers and families in need. Likewise, partners lauded Second Harvest for going above and beyond to serve as a mechanism to turn the idea into reality. The CARES project was a considerable undertaking, and several interviewees described Second Harvest's work as "nothing short of a miracle" given the time constraints, infrastructure challenges, and new territory of local purchasing. This effort could not have been successful without the many stakeholders who offered advice, facilitated connections, and worked within their own networks to streamline ordering.

Through this program, Second Harvest gained cross-sector connections which have had a valuable effect in bringing together disparate players in the local food system to the same table. Second Harvest staff expressed an interest in working to keep open the doors to other food sources in order to continue and build upon the progress and new relationships established.

Community investment in local agriculture and its subsequent linkage to the emergency food system can reshape how we think about addressing food insecurity. This farm-to-food bank project is further evidence that there is no single mechanism for supporting healthy communities. Yes, food is a tangible good, but it can also be used to represent a force for stability, dignity, and support.

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COMMENTARY

Special issue:
Food as a Tool for Social Change

From seed to social agency

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Abstract

Food studies is an emerging and interdisciplinary field that has produced abundant theoretical, analytical, and conceptual insights into contemporary agro-food system dynamics. However, space still exists for the convergence of classroom-based food pedagogy and transformative community work to promote social justice frameworks. While calling for a paradigm shift within educational systems, we ask, how can community-based experiential engagement in post-secondary food pedagogy enhance student learning, bridge academic-public divides, and foster transformative social change? Drawing from our experiences farming in Calgary, we argue that activist food studies employed with a learner-centered, place-based teaching approach centering Indigenous Knowledge Systems can support local food networks and build community within and beyond academia. We present strategies for bridging the academic-public divide through a participatory approach and activist scholarship that directly engages with sustainable urban and agrarian development. Complementing course-based theory and literature with applied methodologies that build the technical and leadership capacity of students will enhance student learning, build stronger community ties, and produce meaningful work that connects the local to the global. Furthermore, we will reflect upon our approach, identify potential benefits to students who engage in food studies, and offer recommendations for best practices in food pedagogy that will support social change.

Keywords

Food Systems, Social Change, Food Pedagogy, Activist Scholarship, Community, Food Security, Experiential Learning, Participatory

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The manifold social and environmental ramifications of large-scale industrial agriculture are propelling food scholars and practitioners to identify and employ agrarian models that are more ecologically sustainable, culturally appropriate, and socially inclusive (IPES-Food, 2016; McKay, 2020). We argue that central to this movement is an acknowledgment of long-held Indigenous epistemologies and practices emphasizing biotic diversity and reciprocity (Absolon, 2011; Henderson, 2000; Kimmerer, 2013), and an understanding that 'sustainable agriculture' is not a prescribed package but dynamic and place-specific (Wezel et al., 2016). Furthermore, we call for a paradigm shift within post-secondary frameworks that converges theoretical and conceptual food pedagogy (Meek & Tarlau, 2016) with action-based community work to foster positive social change.

Through a self-reflexive case study in urban agriculture guided by the principles of place-based learning (Mannion et al., 2013), we ask: how can community-based experiential engagement in post-secondary food pedagogy enhance student learning, bridge academic-public divides, and foster transformative social change? How can activist food studies employ a learner-centered, place-based teaching approach that centers Indigenous Knowledge Systems?

Situating our questions spatially in Calgary (Moh'kinstsis [MOH-kin-stsis] in the Blackfoot language), Canada, we present our experiences and findings from the Small-Scale Agricultural Farm Management Internship with the not-for-profit peri-urban farm Grow Calgary. In our respective roles as executive director (Klinke) and community outreach coordinator (Samar), we worked alongside the founder of the organization and hundreds of volunteers to grow non-genetically modified organism (non-GMO) produce to donate to food access agencies (Figure 1), such as the Leftovers Foundation, Inn From the Cold, Calgary Women's Emergency Shelter, and The Mustard Seed. As teachers and learners, we supported coordinators in over 16 departments and supervised over 500 volunteers. To connect with the wider community and foster awareness about food insecurity, we mobilized volunteer days with youth, conducted interviews with news

Figure 1. Delivering Fresh Produce to a Calgary-based Social Agency

Photos by Veronica Lewis and used with permission.

stations, and connected with over 12,000 'followers' on our social media platforms. Grow Calgary strengthened the household capacity for food resilience during the COVID-19 pandemic through a #Kits4Kids initiative, which reached over 10,000 Calgarians. Miniature growing kits that included donated trays, domes, soil, seeds, and pots were distributed to families in low-income neighborhoods. Furthermore, the policy team created reports and petitions addressing food access and security, urban agriculture, and land use at the municipal and provincial levels through a #Mow2Grow initiative.

In addition to supporting off-the-farm volunteers, we designed a free and hands-on certificate program in advanced urban agriculture. To guide this learner-centered experiential program, we categorized 70 learning targets into 10 themes, including farm design, agroecology, crop care, and more. Each category included a specific, measurable, attainable, relevant, and time-bound (SMART) goal on agricultural practices. Smaller learning outcomes were always tied to the broader transformative agenda of reducing food insecurity in Calgary through ecologically sustainable modes of food production.

While sustaining soils and biosequestration, we emphasized earth care, people care, and future care through our synergetic approaches. Utilizing whole-systems thinking, we simulated and stacked the patterns and resilient functions observed in the natural ecosystem on the farm. For example, we operationalized complementary and adaptive techniques that bolstered ecosystem resilience, such as cover cropping, mulching, companion planting (Figure 2), and 'chopping and dropping.' We also optimized the use of low-impact local resources, such as compost, through our household and business compost program; minimized the use of agro-chemicals through natural fertilizers and integrated pest management systems; and reduced high-impact technologies and energy-intensive inputs by supporting regenerative practices. Farming in this way was facilitated by a praxis that built upon the strengths, or assets, of its learners and natural ecosystem. As opposed to conventional classroom-based learning, place-based learning challenged us to understand deeper layers of our physical environments, including the conditions and barriers for growing healthy and accessible food.

Figure 2. Watering Young Corn, Beans, and Squash

Photo by Camilo Gonzalez and used with permission.

Until recently, development efforts situated in food pedagogy have centered largely on industrial production models (IPES-Food, 2016). Scaffolded by key agrarian questions, including (1) who owns what? (2) who does what? (3) who gets what? and (4) what do they do with it? (Bernstein, 2010), the emergence of 'critical agrarian studies' broadens this analysis to connect the global to the local by addressing the financialization of food, the feminization of agriculture, land-grabbing, and food

sovereignty (Edelman & Wolford, 2017). Critical agrarian studies emphasizes how 'sustainable agriculture' is not a prescribed package, but is place-specific and dynamic. It is always adapting to local needs, environmental conditions, ecological carrying capacities, seasonal availability of resources, mobility and access to land, social organization and population density, demand for foodstuffs, and degrees of mechanization (Wezel et al., 2016). However, we argue that space still exists for the convergence of classroom-based food pedagogy and community-based experiential engagement to enhance student learning, bridge academic-public divides, and foster transformative social change.

Moreover, we have found that central to activist food pedagogy is a learner-centered, place-based praxis scaffolded by Indigenous ways of knowing and being that emphasize biodiversity and reciprocal relationships. Chickasaw author Dr. James (Sa'ke'j) Youngblood Henderson shares that "most Aboriginal worldviews and languages are formulated by experiencing an ecosystem" (2000, p. 259), while Anishinaabekwe scholar Dr. Kathleen E. Absolon (Minogiizhigokwe) from Flying Post First Nation states that "Indigenous knowledge is earth-centered, with ecology-based philosophies derived out of respect for the harmony and balance within all living beings of Creation" (2011, p. 31). Dr. Robin Wall Kimmerer (2013) of the Citizen Potawatomi Nation emphasizes that plants are our oldest teachers, whose inherent knowledge we must acknowledge. Therefore, when discussing 'alternatives' to the current industrial agrarian regime, it is essential to remember that ecologically attuned harvesting practices have long been employed by Indigenous land stewards, whose narratives have largely been suppressed under hegemonic systems of knowledge production and dissemination.

Our experience interning with an urban farm as graduate students highlighted opportunities for a paradigm shift in academia that merges theoretical and conceptual food studies with action-based community work to support sustainable local food systems and build community. It is through relationship-building and engagement, combined with knowledge mobilization through education, that we can effect change and challenge the dominant food model that marginalizes many and leads to ecological degradation (IPES-Food, 2018). Although our case study is a small initiative at the margins of the food system, it can be reproduced and bring awareness about more sustainable farming practices, such as diversification of plants and species, low-impact technologies, renewable forms of energy, input and output choices that reflect natural ecosystems, and holistic social frameworks that strengthen community ties and increase food access, security, and sovereignty.

We argue that experiential learning that is community-driven and learner-centered cultivates an adaptive and reflexive learning environment reflecting local needs, objectives, and approaches to sustainable agriculture. Building on the distributed knowledge and theoretical contributions of food studies, activist food pedagogy applies these concepts alongside local stakeholders to effect change. Local and global issues surrounding food access and security are understood at a practical level to reduce vulnerabilities created by the dominant food systems. Grounding an academic framework in activist food pedagogy better informed us of food security dynamics, as well as enhanced our capacities in advanced urban agriculture. It is our hope that similar internship experiences will support efforts of increasing food access and resiliency among marginalized populations.

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COMMENTARY

Special issue:
Food as a Tool for Social Change

Recipes for resistance: Practical applications of restorative food justice in New Haven, Connecticut

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Abstract

In the United States, many people of color recently released from prison are likely to be food insecure. The intersections between race, food security, and release from prison are starting to be recognized. However, food justice should be informed by the perspectives and work being done by returning citizens and people of color. With the help of EMERGE CT, a transitional employment social enterprise for returning citizens in New Haven, Connecticut, I collected food access survey data and narratives of crewmembers at EMERGE to explore these issues. I merged restorative justice and food justice frameworks into one framework to develop an initiative that focuses on the availability of healthy, sustainable, and culturally appropriate food for returning citizens and addresses the social trauma that is perpetuated through both the food and prison systems. Further, I write about the importance of compensating food system leaders of color. I provide insight on the challenges in planning such a program. I discuss why we need to amplify the voices of returning citizens in food justice work. Lastly, I consider how these collaborative, cross-movement coalitions develop creative ways to re-envision equity.

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Author Note

This commentary is based on the author's completed graduate practicum work.

Keywords
Food Justice, Restorative Justice, Food Insecurity, Racial Inequity, Incarceration, Cultural Sustainability, Livable Wage

The United States has the highest incarceration rate in the world, with a rate of 698 people imprisoned per 100,000 residents (Wagner & Bertram, 2020). The scope of this rate has resulted in the devastation of low-income communities and communities of color. Imprisonment exploits acquired economic, cultural, and social capital, exacerbates poverty and segregation, unsettles families, and reinforces historical community marginalization. Currently incarcerated individuals and returning citizens are not often seen as deserving equitable treatment, as they must navigate systemic and structural barriers to upward mobility, such as food stamp bans, the lack of job assistance, and criminal history questions on job applications. Thus, returning citizens transitioning into the community face significant challenges, including the struggle to gain access to healthy, culturally appropriate, and affordable food. However, in critical scholarship about food studies, food, prisons, poverty, and race have rarely been linked together in relation to the food justice movement.[1] But we must not forget the women, men, youth, transgender, and gender-nonconforming individuals who have been affected by the carceral state and their unique experiences within it. In April 2020, I set out to research how restorative justice and food justice merge to form restorative food justice, and; specifically, how community members are addressing the intersections of food insecurity, race, and incarceration in New Haven, Connecticut.

The food insecurity of returning citizens of color has multiple layers, but when pulling away layers, we find that geographies, politics, and economics are the major contributing drivers. Further, when we analyze prison food, we can see that meals are not only used as a source of control, but are also devoid of cultural relevance, nutrition, flavor, sustainability, and care. Additionally, those who leave prison exit with little to no monetary and employment support from the government and return to a society where implicit bias surrounding their previous incarceration makes it difficult to receive gainful employment. To combat these inequities, food and restorative justice activists fight for policies, develop programs, and create living wage work that supports returning citizens in their community re-entry. Sbicca (2016) states that incarcerated geographies, specifically the experiences that result from living in heavily surveilled spaces before, during, and after prison, inform the development of restorative food justice. While food justice lays the foundation to fight social inequities that relate to food, restorative justice completes the structure and provides tools to heal from the trauma of incarceration. When we are fighting for systems change, we must guarantee that returning citizens of color are not only included in the fight, but that their needs are at the forefront. This leads me to ask: how can we all envision fair food futures for all?

In my hometown of New Haven, there is no question about the truth of these barriers and their subsequent effects. For instance, food insecurity rates in New Haven are 22% and 27% among Black and Latinx adults, respectively (DataHaven, 2020). Across all racial demographics, food insecurity rates in the U.S. are 10%, and in Connecticut, they are 8% (U.S. Census Bureau, 2020). Furthermore, 69% of the 3,900 adults under Connecticut community supervision are Black, Indigenous, and people of color (BIPOC), as of September 2020 (Connecticut Department of Corrections, 2020). As a part of my graduate food studies practicum, I worked with EMERGE CT to implement a restorative food justice program to engage with community members and to mitigate the effects of food insecurity for returning citizens through educational and practical components. EMERGE is a social enterprise that operates a transitional employment program for adults returning to the greater New Haven community from

[1] A few scholars that address these issues include Joshua Sbicca, Ashanté M. Reese, Emily Wang, Alexander Testa, Elissa Marek, and Dylan B. Jackson.

incarceration. As both a nonprofit organization and a certified home improvement contractor, EMERGE offers part-time paid training in construction and property maintenance, while also offering mentorship and program services geared toward personal development and destigmatizing mental health issues. I had reached out to EMERGE to see if it needed a food component in its support services. When EMERGE responded, COVID was just beginning, and people globally were noticing the empty aisles in supermarkets and thinking about the need for shorter food supply chains. I spoke about this with the director of training and development, Reinaldo, and a crew lead, Maurice, and they stated that EMERGE's goals are always driven by helping their crewmembers have life, liberty, and access to economic freedom. Using food to address both these disparities and goals was a seamless fit.

To best align with this framework, the mission of EMERGE, and the needs of crewmembers (the folks who would be participating in the program), I created an exploratory survey (n=17) to assess the food access needs and program wants of the crewmembers at EMERGE. The survey results also helped to inform a food systems curriculum. I asked questions about their favorite food choices to purchase and cook, how and where they travelled to get food, what they thought about prison food, their favorite foods since returning, and what they wanted out of a food project. I ran cross tabulations to find correlations between answers, such as connecting SNAP benefits with experiencing financial stability. Although the sample size does not allow statistical analysis, I used the cross tabulations in an exploratory way.

I started the project by meeting with Maurice and Reinaldo weekly to get a feel for the organizational values, needs, and vision. I developed an iterative document outlining local food system disparities, goals, objectives, indicators, action steps, mission, initiative, contexts, inputs, outputs, monitoring, and evaluation methods. This served as my framework where I gathered data from journal articles, discussions with Reinaldo, Maurice, and community members, and survey results from crewmembers. This informal logic model helped me to stay on track, but at first was also an overwhelming volume of information for me as a first-time, remote program developer. To convey these insights in lessons for the participating crewmembers, I cultivated partnerships with BIPOC who are working on food justice causes in New Haven to facilitate these sessions in a non-didactic way. In response to different learning styles, we developed immersive classes on food systems, food safety, culinary arts, and sustainable agriculture, while integrating participatory methods such as photovoice and story share-outs. I wanted to make sure that the stories, experiences, and knowledge of the crewmembers were centered through our active share-outs on topics such as power, privileges, food memories, communities, and cultures.

Through the survey results, I also assessed protective factors unique to this population, such as self-efficacy, stress response, communal reliance, and cultural connectivity. Through city mapping tools and government data, I researched the structural causes of inadequate food access in New Haven. Being mindful that it was not within my resources to work at the policy level, the EMERGE leadership and I wanted the main goals to be the following: to increase the availability of healthy, sustainable, and culturally appropriate food for returning citizens; to heal from the damages of incarceration through a hands-on food systems curriculum; to amplify the voices of folks by confronting social trauma that is perpetuated through stages of both the food and prison systems; and to provide foundational training to be used toward economic opportunities. We hoped that the program would provide ways for returning citizens to mobilize their communities to get involved in gaining control of food spaces. When people who work with the prison population have been to prison and lead these spaces, these cross-movement ties reveal how restorative food justice can create collective liberation and resistance from our food and prison systems, offer creative solutions, and expand the field of food justice (Sbicca, 2016).

Creating this initiative was not without its challenges. Many food programs focus on personal choice or food aid instead of understanding power imbalances, the built environment, socioeconomic status,

and mental wellness. To create a holistic project that would be rooted in racial and class equality, grounded in solutions to break free from the prison pipeline, and incorporated the needs of each participant, we needed a wealth of resources: financial, technical, and stakeholder buy-in. Similarly, there were people who wanted the program to rely on unpaid labor, but how can we work toward transforming the food system if we do not pay those who contribute? These challenges led me to seek out external funding at the grassroots level. I had never fundraised before and I was questioned about the value of the work, as there were people who did not see it as a worthy project. I believe we must fight toward a livable wage; it is all too common to see unlivable wages in restaurants, farming, and general care work, especially among the Black, Asian, Indigenous, and Latinx people (mainly women, immigrants, and returning citizens) who work in these sectors.

Food justice necessitates the linkage of economic, racial, environmental, and restorative justice practices that help integrate, rehabilitate, and heal returning citizens. Therefore, I would like to see further research that includes (1) case studies of prison food policies and programs and recommendations for advocacy of sustainable, safe, and culturally appropriate food; (2) longitudinal studies on how "banning the box" on job applications that ask about conviction history can relate to food security; and (3) researching the effects of integrating the farm-to-school movement with efforts to abolish the school-to-prison pipeline. These topics can ensure critical, interdisciplinary, and cross-movement coalitions. However, most importantly, we must prioritize and divert funding to the research areas that returning citizens and BIPOC want to explore; they have the knowledge and positionality to navigate the issues that unfairly and disproportionately affect them. We must preserve the narratives of and shift power to returning citizens of color, as food justice is lacking without these perspectives. We cannot collectively abolish broken systems if those most affected are not spearheading the fight. Food, with all its layers and intricacies, can aid in the quest for *transformative* justice.

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COMMENTARY

Special issue:
Food as a Tool for Social Change

Setting the table, not running it: An inclusive approach to access to healthy foods

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Introduction

Food Empowerment Project (F.E.P.) is a vegan food justice nonprofit in northern California. We focus on making a more just and sustainable food system for *everyone* involved. Since injustice in the food system crosses the species barrier, we work to connect the dots between the exploitation of human and nonhuman animals. We focus our efforts on four main areas: ending the use of animals in the food system, improving access to healthy foods in Black, Brown, and low-income communities, exposing the worst forms of child labor (including slavery) in the chocolate industry, and advocating for farmworker rights. These seemingly disparate areas have much in common: they are interlocking forms of oppression, marginalization, and domination in the food system. We recognize that the intersecting nature of oppression necessitates a nuanced response. For example, as an organization working on both farm-

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Author Note

The author (Karen S. Emmerman) is a member of Food Empowerment Project's advisory board and a donor to the organization. She did not receive compensation for writing this piece nor will she benefit financially in any way from having written it.

worker justice and food apartheid, we cannot advocate for lowering the price of food as this would negatively impact produce workers who already suffer grave systemic injustice. Instead, we advocate for equality of access and living wages for everyone.[1] In this piece, we focus on our approach to the lack of access to healthy foods, and specifically our community-based efforts in Vallejo, California.

By Invitation Only

It is well-documented, including in the pages of this journal, that people living in Black, Brown, Indigenous, and low-income communities lack access to the healthy foods necessary for living a flourishing life. Though we passionately believe that access to fresh fruits and vegetables as well as other healthy foods is a basic human right, F.E.P. takes a "by invitation only" approach to working with communities on access issues. In other words, we only enter communities where we have been invited by residents and community leaders. We believe communities know what they want and need as well as whose expertise and approach will be most valuable to achieving their goals. Well-intentioned nongovernmental organizations (NGOs) and government agencies sometimes approach access issues by telling communities what they need and how to get it. F.E.P.'s approach hinges on respect—for the epistemic authority of community members, for the voices of activism and resistance already present in the communities, and for the ability of the communities themselves to know what solutions would best serve their interests. As a result, we go only where we are invited.

Vallejo, California—Bringing Community Voices to the Table

In 2012, F.E.P.'s founder and then executive director, lauren Ornelas, met with David Hilliard, a founding member of the Black Panther Party and the Huey P. Newton Foundation, to discuss the Black Panther Party's free breakfast program. When lauren showed him our reports and explained the work we had done on access issues in San José, Hilliard asked if we could undertake similar work in the community of Vallejo. The city is home to a diverse population of approximately 120,000. One-third of residents are white, and the remaining two-thirds are made up of Asian (predominantly Filipinx), Latinx, Black, and other ethnicities. Though thrilled about Hilliard's interest, our first step was to gauge the interest of the broader Vallejo community in partnering with us on their access issues. We reached out to community organizations like the Vallejo People's Garden and Global Center for Success to see if our approach and expertise met their needs. Once we were certain that F.E.P. would be a welcomed partner in the work of understanding and ameliorating the injustices faced by Vallejo residents, we got to work.

Assessing what foods are available and where is a crucial step to understanding the access issues communities face. Our assessment method involves surveying local grocery stores, convenience stores, and liquor stores (anywhere that sells food) to understand exactly which foods are available and where. We already had such a survey tool from our previous work on access issues in San José, but the ethnic make-up of Vallejo, importantly, is different from San José, which necessitated changes to the survey tool. Working with our Vallejo community partners, we gathered feedback from the Black and Filipinx residents of Vallejo about culturally relevant foods so that we could add those to the Latinx foods already represented in the tool. This part of our process is fundamental to showing respect for communities. Variations in ethnicity mean variations in what foods people want, need, and know how to cook. A survey that looks only for a particular type of food will fail to accurately reflect the access issues faced by specific groups of the local population.

[1] Food Empowerment Project does not use the common term "food deserts" to describe areas impacted by lack of access to healthy foods. We prefer "food apartheid." Deserts are naturally occurring phenomena. "Food apartheid" better captures the deliberate systemic, political, and racist origins of the food crisis faced in Black, Brown, Indigenous, and low-income communities.

After making the necessary changes to the survey tool, we began our survey. Volunteers from Touro University, Vallejo People's Garden, the Global Center for Success, and F.E.P. went to every food-selling establishment in Vallejo, clipboard in hand. We published the results of this survey in our report, *Vallejo: City of Opportunity Lacks Access to Healthy Food.* Although the survey results tell a dark story about the proliferation of liquor and convenience stores and the history of large chain grocery stores abandoning Vallejo for more suburban locales and clienteles (leaving restrictive deeds in their wake that prevent new grocery stores from moving in), we knew that understanding the full picture of how lack of access to healthy foods affects Vallejo residents meant talking with the residents themselves. This gave rise to our community focus groups.

In May 2017, F.E.P. conducted six focus groups with Vallejo residents, including those experiencing homelessness. Our goal was to uncover the experiences of residents buying and receiving food in Vallejo. Narrative is critically important to work on food access issues. Hearing people's stories and understanding the systemic barriers that undermine their ability to care for themselves and their families is essential to thinking about solutions and how to advocate for them at the corporate, legislative, and regulatory levels. Recognizing that community members are experts with knowledge that we need to do our work, we compensated our focus group members with US$50 and served them a vegan meal. The results of these community conversations were published in our report, *Bringing Community Voices to the Table: Food Access in Vallejo, CA, Focus Groups Qualitative Data Analysis Results.*

As we had done with our San José reports, we distributed our Vallejo reports to policy-makers at the local, state, and federal levels. The collaborative nature of our work is underscored by the fact that we were able to give the reports to Vallejo People's Garden to be used in their fundraising efforts. The reports helped make the compelling case that food sovereignty in the form of a community garden is a key part of solving access issues in Vallejo. To help underscore the importance of the programs they were working on , the Solano County Health Department distributed so many copies of the report in the community that they depleted our reserves and paid our reprinting costs. Our grassroots work in the community that started with lauren and David Hilliard's meeting blossomed into a collaborative effort, one that resulted in a better understanding of the issues Vallejo residents face and two reports that served advocacy efforts in the community.

From Table to Tent

Our efforts in communities are focused on providing a table where everyone can sit and share their expertise, experiences, and visions for the future. Inviting all stakeholders to the table is essential to access work because communities know best what they are experiencing and what will be needed to effectively right the injustices they face. Our hope, however, is that what starts as a table will quickly transform to a tent—one where even more organizations, residents, policy-makers, and advocates come together collaboratively to undertake the complex work of restoring access to healthy foods for communities.

In Vallejo, this tent has materialized in a variety of ways. In 2020 F.E.P. sponsored our fifth annual Vallejo Healthy Food Fest (held online in 2020 due to COVID-19). These events put an emphasis on local resources, pulling from the culinary, aesthetic, and activist agents of change living in Vallejo. Always coordinated by a Vallejo resident or former resident, our Vallejo Healthy Food Fests include vegan cooking demonstrations by Black, Filipinx, and Latinx chefs cooking culturally appropriate foods, performances by local dance groups, and information from local groups working on food-related issues and advocacy. These are occasions to celebrate the strength found in Vallejo's diversity and to build stronger partnerships to fight the food system injustices that affect Vallejo so deeply.

The tent also includes working together with a coalition of individuals to form a worker-owned

cooperative in Vallejo so that residents can have access to a full-service grocery store. Worker-owned cooperatives provide many benefits, including an opportunity for workers to control their own working conditions and compensation.

We believe that communities have the power to use their talents and strengths to create change that will improve residents' ability to live flourishing, healthy lives. Arguably, changes stemming from community efforts are the most important to generating long-term improvements to food access. We also know that with our reports distributed to policy-makers, we have expanded the tent to include those in the position to generate long-term, systemic changes at the level of legislation and regulation. More and more local, state, and federal legislators are becoming aware of access issues for Black, Brown, Indigenous, and low-income communities. We are hopeful that our work, centered on respect for community members' knowledge, expertise, and advocacy, can help light the way forward to meaningful change that benefits communities hardest hit by systemic racism and injustice. 

Resources

Media:

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F.E.P. Access Reports (all are available at https://foodispower.org/fep-printed-materials/):

- *Vallejo: City of Opportunity Lacks Access to Healthy Food*
- *Bringing Community Voices to the Table: Food Access in Vallejo, CA, Focus Groups Qualitative Data Analysis Results*
- *Bringing Community Voices to the Table: Food Empowerment Project: Food Access Issues in San José Focus Groups Qualitative Data Analysis Results*
- *Shining a Light on the Valley of Heart's Delight: Taking a Look at Access to Healthy Foods in Santa Clara County's Communities of Color and Low-Income Communities*

Food Empowerment Project

- About F.E.P.: https://foodispower.org/
- Access and health: https://foodispower.org/access-health/
- Human labor and slavery: https://foodispower.org/human-labor-slavery/
- Land animals in the food system: https://foodispower.org/animals-on-land/
- Marine animals in the food system: https://foodispower.org/animals-of-the-sea-2/

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COMMENTARY

Special issue:
Food as a Tool for Social Change

Reflections on the North Central Community Gardens Branch Out Project

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Abstract
The North Central Community Gardens, an urban agriculture initiative of the North Central Community Association in Regina, Saskatchewan, Canada, introduced the Branch Out Project in the summer of 2020. The project's purpose was to expand the North Central Community Gardens, which already consisted of three locations, onto additional schoolyard and backyard land. Despite—or perhaps because of—the COVID-19 pandemic, the first season of the project resulted in the construction of eight new gardens and has positively impacted food access, community engagement, and knowledge development and exchange. The goals of this commentary are two-fold: (1) to provide insight into the process of community garden expansion, with the hopes of benefiting other practitioners; and (2) to contribute to an understanding of the possibilities, challenges, and impacts of community gardens in general, and community garden expansion in particular, as a counter-neoliberal food sovereignty practice.

Keywords
Community Garden, Urban Agriculture, Counter-Neoliberalization, Community Food Systems, Food Sovereignty, Canada

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"When does urban farming pose a challenge to neoliberalization?"

—*Weissman, 2015, p. 360*

As with all work that is critical of alternative food system initiatives, this quotation makes us rigorously question whether our efforts to confront the injustices of neoliberal capitalism are truly effective or whether we may be reproducing inequalities identical to those of the conventional food system. Since first engaging with this question, I have worked as the Community Garden Coordinator for the North Central Community Association (NCCA), located in Regina, Saskatchewan, Canada, for five seasons, and am concurrently a graduate student at the University of Regina. As a scholar-practitioner, I strive to carry this question with me in my daily work, aiming not only to facilitate urban agriculture but also to join a movement of co-conspiring with community members to (1) reconnect with the means of food production; (2) establish avenues for greater community control of how food is produced, acquired, and consumed; (3) organize more equitable labor relations through which to grow, process, and distribute food; and (4) advocate for the realization of food as an entitlement.

An Introduction to the Branch Out Project

With these goals in mind, the North Central Community Gardens (NCCG) debuted the Branch Out Project (BOP) in the summer of 2020. The NCCG, an urban agriculture initiative of the NCCA, introduced BOP after several years of listening to community members' desires for increased access to garden space. The project's purpose was to expand the NCCG, which already consisted of three open-access locations, onto additional schoolyard and backyard land. Despite—or perhaps, in some ways, because of (Mejia et al., 2020)—the COVID-19 pandemic, the first season of BOP resulted in the construction of eight new gardens. However, this project is not simply about building gardens, nor is it suggesting that the solution to poverty, inadequate food access, and insufficient public resources is that the people who suffer most from these injustices must, as the saying goes, pull themselves up by their bootstraps. Rather, the project strives to provide anyone with the ability to grow fresh produce for themselves and their community, and in doing so, increase the community's capacity for food sovereignty within a grassroots system. When they join BOP, participants become part of the NCCG network, agreeing to tend to their new garden and provide half of their produce to the NCCG in exchange for access to the initial resources to construct the garden, ongoing support from the coordinator and NCCG volunteers, and the availability of additional resources throughout each growing season.

Participants in BOP were selected following a survey that allowed respondents to indicate their interest in working with the NCCG to establish a new backyard or schoolyard garden. I then worked with the participants and a team of volunteers to construct and install the new gardens. Participants were invited to partake in a post-season interview to share their experiences and shed insight on the impacts of the program. Throughout the process of implementing BOP, several lessons were learned regarding both the practice and theoretical implications of community garden expansion.

The Survey

The survey was distributed via the NCCG Facebook page on July 8th, 2020, and contained three parts. The first section asked participants to respond to a series of questions about their experience with and perceptions of the existing gardens. The second consisted of demographic questions. The third invited respondents to indicate their interest in having a new garden established. Consistent with much of the existing literature on community gardening, survey responses (N=21) indicated that the existing gardens

provide an array of benefits to a diverse group of community members (Aptekar, 2015; Baker, 2004; Blake & Cloutier-Fisher, 2009; Drake & Lawson, 2015; McClintock, 2014).

For all garden-facilitated activities in which they had previously participated, including planting days, workshops, drop-in volunteer hours, day camp field trips, harvest stands, and more, all respondents report having had either a slightly positive or very positive experience. Of those who responded, 100% agreed to some extent that they consume more fresh produce because of the community gardens; 100% agreed to some extent that they have more control over what they eat; over 94% agreed to some extent that they have more knowledge about gardening; over 88% agreed to some extent that they spend less money on food; and over 84% agreed to some extent that they are more physically active. Additionally, 100% agreed to some extent that they have met new people; 100% agreed to some extent that they have more interaction with the land; 95% agreed to some extent that they have contributed their skills, knowledge, or time to North Central; over 94% agreed to some extent that they spend more time outside in the summer; and over 84% agreed to some extent that they feel safer in North Central. These findings echo conclusions found elsewhere (Drake & Lawson, 2015) that community gardens have noticeable and valuable impacts on food access, education, and community engagement. In the final section of the survey, 11 respondents indicated an interest in volunteering their own yard for the community garden expansion project or a schoolyard with which they were affiliated.

Community Garden Expansion

Community garden projects often struggle to secure the funding necessary to sustain themselves, let alone expand (Drake & Lawson, 2015; Ghose & Pettygrove, 2014). In 2020, I was able to mobilize my privilege as a scholar-practitioner to secure a Social Sciences & Humanities Research Council of Canada Master's Scholarship as well as a Regina Public Interest Research Group Graduate Research Grant, which provided the initial funding necessary for the first phase of construction. This phase consisted of building, filling with soil, and seeding three backyard gardens and one school garden.

After announcing the completion of this phase on Facebook, and having the story picked up by local print media and radio, the nonprofit organization Street Culture Project became interested in BOP. Having many of the same mandates as the NCCA, the two organizations partnered to implement a second phase, consisting of three additional backyard gardens and one additional schoolyard garden. Street Culture Project provided building materials, soil, and labor power for this phase. All eight new gardens were constructed with the involvement of residents, teachers, parent-teacher association members, and additional volunteers from within the community.

Although the new gardens were installed too late in the season to achieve maximum food production, they have already demonstrated a myriad of benefits, as articulated in interviews with participants. Patricia, whose new garden is accessible from the back alley and was harvested by herself and passersby, emphasized the impacts on both community connection and improved food access: "people like it back there, that garden, and when they see me back there and watering it, you know, people are driving by and then they're like 'yeah, good job!'" Similarly, Jade pointed to additional time spent outside, connections with people that he otherwise would not have met, and money saved on grocery shopping as key outcomes, explaining, for example, "we weren't buying as much grocery store produce, so I definitely see the change." The new gardens also contributed a large quantity of produce to a September harvest stand, where it was distributed for free to community members.

Conclusion

The first season of BOP illustrates the desire for increased access to community gardening, how this expansion can be implemented as a collaborative community-based project, and the multiple benefits

that such a project can have. Although the project is in its initial stages, with more expansion planned for the 2021 season, BOP has already provided increased access to productive land for the NCCG, greater engagement of community members, larger quantities of fresh produce available for distribution throughout the community, additional knowledge development and exchange, and many other positive outcomes. However, if BOP is to genuinely "pose a challenge to neoliberalization" (Weissman, 2015, p. 360), the project must continue to focus on questions of access to the means of production; the community's capacity to have control of food production, acquisition, and consumption; equitable labor relations; and food as an entitlement. Moving forward, BOP must remain resistant to the anti-politics of bootstrap individualization and personal consumption, and instead actively pursue the collectivization of a community-oriented food system.

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COVID-19, food insecurity, and diet-related diseases: Can syndemic theory inform effective responses? A case study

Special issue:
Food as a Tool for Social Change

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Bronx Partners for Healthy Communities

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Abstract

New York City was hit hard by the COVID-19 pandemic. Although the immediate health burden was devastating, we posit that its long-term impact will be even greater, because the rapid spread of COVID-19 both depended on and exacerbated other deep-seated inequities related to food and broader living conditions. Using the Bronx as a case study, we explore the intersection of the pandemic with two other persistent problems: food insecurity and diet-related diseases, a constellation we label the COVID-Food Syndemic. Syndemic theory focuses on the common causes and biological and social interactions between two or more health problems. We hypothesize that with its focus on the common social causes of ill health, this approach can inform and strengthen the synergies between community-based, activist-driven solutions and municipal government responses, thus reducing the burden of ill health in the Bronx. We suggest that combining these two approaches can more fully mobilize the social changes that are needed in the food system and beyond to interrupt the fundamental drivers of this syndemic and capitalize on the respective strengths of government, civil society, and activists.

Keywords

Syndemic, Food Insecurity, Diet-related Diseases, COVID-19, Pandemic, Community Mobilization, Municipal Government, Food System Change

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Introduction

In March 2020, the novel coronavirus SARS-CoV-2 began its devastating spread in New York City. Over the following few weeks, rates of infection, illness, hospitalizations, and deaths from COVID-19 increased exponentially. By the end of 2020, COVID-19 had infected 436,692 New York City residents, hospitalized 8.29% of the city's population, and killed 25,186 New York City residents (*New York Times,* 2021), making New York City one of the hardest-hit areas of the 2020 waves of the pandemic (Solis et al., 2020).

As devastating as the immediate health burden imposed by the pandemic was (Bailey & Moon, 2020), its long-term impact will be even greater, in part because the rapid spread of COVID-19 both depended on and exacerbated other deep-seated inequities in New York City. In this report, we explore the intersection of the COVID-19 pandemic with two other persistent problems: high rates of food insecurity and diet-related diseases (DRD). For more than 60 years, food insecurity, hunger, and the disproportionate impact of chronic diseases have been visible consequences—and causes—of urban poverty in the United States (Baumgartner, 1969; Harrington, 1962). Our investigation is centered in the Bronx, the poorest of New York City's five boroughs, with the highest burden of each of the three problems.

Centering our inquiry in the Bronx, we examine in what ways the concept of syndemic, defined as "two or more epidemics … interacting synergistically and contributing, as a result of their interaction, to excess burden of diseases in a population" (Singer & Clair, 2003), can lead to more effective public health programs and public policies to reduce the burden of disease that this syndemic we call the COVID-Food Syndemic—food insecurity, DRD, and COVID-19—imposes on the people of the Bronx. More broadly, we examine how the concept of syndemics can strengthen actions by municipal government and civil society to address the drivers of persistent racial and ethnic inequities in health in urban America. Such cross-cutting actions can also help frame and develop a new urban food agenda that promotes intersectoral, multilevel, and democratic responses to food crises (Sonnino & Coulson, 2020).

We make the case for two basic premises. First, we argue that a coordinated response to the common drivers of these three related epidemics that constitute the COVID-Food Syndemic will be more effective than addressing each epidemic separately. Second, we argue that strengthening and aligning the many community-based responses that residents and activists in the Bronx have already launched in response to these three epidemics as well as their underlying causes, with government responses to the syndemic, will in the long run be more effective than either strategy alone. By examining how community activists in the Bronx use food justice, anti-racism, and equity as frameworks in responding to the intersecting problems that make the Bronx the poorest and least healthy of New York State's 62 counties, we aim to show that aligning community-driven efforts at social change with municipal policy initiatives can contribute to more transformative changes in food and other social policies.

Profile of the Bronx

A brief description of the Bronx provides the background for this investigation. In 2019, 1.4 million people lived in the Bronx, about 17% of New York City's population. The average life expectancy in the Bronx for the period 2010–2015 was 78.3 years, the shortest of the city's five boroughs and the second shortest of all New York State counties. In the Bronx, neighborhoods with the shortest life expectancy averaged 69.4 years, while the areas with the longest averaged 86.1 years, a gap of 16.7 years. Compared to New York City as a whole (Table 1), the Bronx included higher concentrations of people at risk for one or more of the three health problems under consideration in this study.

This concentration of populations at risk is, in turn, the consequence of several social and economic trends in New York City and the nation, including growing income inequality; increasing poverty; persistent segregation; wide inequities in access to and quality of housing, education, and healthcare; the rise in low-wage labor; and social policies such as tax cuts for the wealthy and cuts in safety-net programs (Bailey & Moon, 2020). Over the past several decades, these trends have created social and economic conditions that have facili

Table 1. Comparison of the Bronx and New York City on Selected Demographic Indicators

Indicator (Year)	Bronx (%)	New York City (%)
Race/Ethnicity (2019)		
Latino/Hispanic	55.9	29.1
Black	29.3	21.7
White	9.3	31.9
Asian	3.5	14.3
Other	2	3
Live in owner–occupied housing unit (2014–2018)	19.6	32.7
Population density, in persons per sq. mile (2010)	32,203	27,012
Graduate of high school or higher (2014–2018)	72	81.6
Disability for those under 65 (2014–2018)	11.1	6.8
Household mean income (2014–2018)	US$38,085	US$60,762
Persons in poverty (2018)	27.3	18.9

Source: U.S. Census Bureau, Quick Facts;
www.census.gov/quickfacts/fact/table/newyorkcitynewyork,bronxcountybronxboroughnewyork,kingscountybrooklynboroughnewyork,newyorkcountymanhattanboroughnewyork,queenscountyqueensboroughnewyork,richmondcountystatenislandboroughnewyork/PST045219

tated higher rates of ill health in the Bronx compared to New York City as a whole, and stark racial and ethnic inequities within the Bronx. For the past decade, the Bronx has been ranked consistently as the least healthy of New York State's counties according to the U.S. County Health Rankings (University of Wisconsin Population Health Institute, 2020a).

COVID-19 in the Bronx: Infections, Hospitalizations, and Deaths

By the end of October 2020, COVID-19 case and fatality rates per capita in the Bronx were 31.4% and 22%, respectively, higher than the citywide rates (New York City Department of Health and Mental Hygiene, 2020). By the end of April (the peak of the outbreak in New York), Bronx residents were twice as likely to be hospitalized or die of COVID-19 than residents of neighboring Manhattan (Wadhera et al., 2020). By October 2020, more than 5,000 Bronx residents had died from COVID-19. Table 2 demonstrates the uneven distribution of the case

Table 2. COVID-19 Case Rates and Fatality Rates by Race in the Bronx Compared to New York City (per 100,000) between March 1, 2020, and October 21, 2020

	Case Rates			
	Bronx Rate	% of Bronx Cases	Citywide Rate	% of Citywide Cases
Asian	1,666.9	2.7	854.3	9.7
White	2,245.0	9.8	1,323.5	34.3
Black	2,584.3	32.7	1,877.2	13.2
Latinx	2,607.2	54.8	2,076.9	42.7
	Fatality Rates			
	Bronx Rate	% of Bronx Deaths	Citywide Rate	% of Citywide Deaths
Asian	169.0	2.6	112.5	3.1
White	169.0	12.3	125.1	26.2
Black	305.8	35.4	249.9	33.7
Latinx	268.9	49.8	267.2	37.0

Source: New York City Department of Health and Mental Hygiene (DOHMH). (2020, November 6). *COVID-19 data: Fatalities by county*. Retrieved November 7, 2020, from https://covid19tracker.health.ny.gov

and fatality rates by race compared to the citywide rates, showing that case rates among Black and Latinx residents in the Bronx were 13% higher and fatality rates were 16% higher than citywide rates.

Food Insecurity in the Bronx

For at least the last 70 years, the Bronx has grappled with high rates of food insecurity, unemployment, housing instability, and inadequate social welfare benefits (Wallace & Wallace, 2000). Food insecurity is a symptom of limited access to healthy food, a problem with multiple causes, including lack of both income and culturally appropriate and appealing options for healthy nutrition. The conditions that triggered multiple health crises include discriminatory housing red-lining and the planned shrinkage of city services; the city's 1970s fiscal crisis and resulting austerity measures that included cuts in public services in poor neighborhoods; and the withdrawal of the federal government from public housing support in the 1980s (Bailey & Moon, 2020; Freudenberg et al., 2006; Wallace, 1988).

Over the years, these conditions allowed arson, HIV, crack and heroin addiction, and homicide and injuries to emerge and flourish in the Bronx. Like COVID-19 infection today, these health and social problems were both the cause and consequence of high rates of housing instability and homelessness, unemployment, financial insecurity, and food insecurity (Wallace & Wallace, 2000). Moreover, the pandemic has reinforced this negative cycle; the economic shutdown caused massive unemployment with resulting financial insecurity. New safety-net programs were often inadequate to meet the needs of the most vulnerable populations, contributing to more food insecurity, ill health, and COVID-19 morbidity and mortality (Parrott, 2021).

Prior to the COVID-19 pandemic, the rate of people living in poverty was 47% higher in the Bronx than citywide (27% vs. 18.9%) (U.S. Census Bureau, 2019), and the proportion of people who spent more than 50% of their income on housing was 24% higher in the Bronx than citywide (33% vs. 27.6%) (Citizens' Committee for Children of New York, 2018). In 2018, the Bronx was considered the least food-secure borough, with 26% of residents and 38% of children living in food-insecure homes, compared to 13% and 18% citywide, respectively (Hunger Free America, 2018). In the United States, poverty is a consistent predictor of higher rates of hunger and food insecurity (Gundersen & Ziliak, 2018).

In the Bronx, rates of food hardship, defined as "sometimes or often running out of food, or worrying about running out of food without having enough money to buy more," varied from 35% to 70% of the sample of households recruited from the 12 community districts in the Bronx.(Gordis et al, 2019). On May 13, 2020, New York City estimated that the number of hungry New Yorkers had doubled in the previous 10 weeks to more than 2 million (Mann, 2020). While county-specific food insecurity data by race are not available, in New York State, between April 23 and July 21, 2020, up to 25% of Latinx and up to 22% of Black residents experienced household food scarcity, almost four times higher than rates for their white counterparts (U.S. Census Bureau, 2020).

In continuing efforts to slow the spread of the virus, all New York's non-essential businesses were closed on March 22, leading to a significant increase in unemployment. By the end of June 2020, the Bronx experienced the highest unemployment rate in New York City, at 24.7% (New York State Department of Labor, 2020b), up from 5% in 2019. This is also the highest unemployment rate across all 62 counties (New York State Department of Labor, 2020a). Some projections show that the economic fallout of the crisis will force nearly 40% more New York City residents and nearly 50% more New York City children to face food insecurity in 2021 (Lehrer, 2020) although the size, scale and efficacy of pandemic relief programs will influence the actual rates.

With the continued decrease in available household income, in a population with limited to no financial reserves, the need for food assistance was on the rise. By the end of April 2020, emergency food providers (EFPs) such as food pantries and soup kitchens experienced nearly double the demand pre–COVID-19, and a 90% increase in first-time visitors (Feeding America, 2020). However, with 50% of Bronx-based EFPs closing due to shortage of volunteers or closed facilities—the

highest proportion in the city—and 90% of which were in high-needs communities, the Bronx continued to grapple with food access.

At the end of 2019, the federal Supplemental Nutrition Assistance Program (SNAP) covered on average approximately 1.5 million recipients in New York City (New York City Open Data, 2019). Although monthly participation in New York City started to decline in 2019, the pandemic drastically altered this trend. By April 2020, more than 68,000 New York City residents enrolled in SNAP, a 4.6% increase from March, making it the largest one-month increase in SNAP participation that New York City has experienced since 2008 (Hunger Free America, 2020). The increase in the Bronx is even more pronounced: by June 2020, 28.3% of Bronx residents were active SNAP recipients compared to 20% citywide, accounting for one-third of the city's SNAP recipients (Hunger Free America, 2020). Between June 2019 and June 2020, the number of Bronx individuals enrolled in SNAP increased by 8% (New York City Open Data, 2018). However, since data are not available on the proportion of either food-insecure or food-secure Bronx residents now enrolled in SNAP, it is not possible to ascertain the extent to which the SNAP program in the Bronx is meeting the needs of food-insecure individuals or households.

In sum, already-high rates of food insecurity in the Bronx were further elevated by steep increases in pandemic-triggered unemployment, school closures, shortages of emergency food distribution channels, and inadequate supplemental welfare programs. While the federal government renewed some safety-net programs in early 2021, the persistence of the underlying weaknesses of the city's economy, especially in the Bronx (Parrott, 2021), makes it likely that absent intervention, high levels of food insecurity will continue in this borough.

Diet-Related Diseases in the Bronx

While COVID-19 widened inequities in premature death and preventable illness concentrated in the Bronx, the pandemic itself did not cause this disproportionate burden. Prior to the pandemic, compared to the citywide population, the people of the Bronx experienced higher rates of a variety of illnesses, including conditions associated with diet and nutrition (Table 3).

Bronx residents experienced rates of adult obesity, adult diabetes prevalence, adult hypertension prevalence, and diabetes mortality at more than 1.2 to 1.45 times the rate of all city residents. Bronx residents were also more likely to consume ≥1 daily portion of sugary beverages than were all New York City residents, consumption patterns associated with higher rates of diet-related diseases (DRD) (New York City Department of Health and

Table 3. Rates of Selected Health Conditions, The Bronx, and New York City, 2018

Health and Behavioral Indicators	Bronx rate (%)	New York City rate (%)	Ratio of Bronx to NYC
Child Obesity	24	20	1.34
Adult Obesity	32	24	1.33
Type 2 Diabetes Prevalence	16	11	1.45
Type 2 Diabetes Mortality, age-adjusted	22.0	18.3	1.2
Hypertension Prevalence	36	28	1.29
Premature Deaths <75	52.1	44.3	1.18
Avoidable Hospitalizations	20.9	10.3	2.02
Adults without Health Insurance	12	12	1.0
Adults without Needed Medical care	12	10	1.2
Adults Consuming ≥1 daily Sugary Beverages	32	23	1.39

Sources: NYC DOHMH, Community Health Survey; New York City Department of Health and Mental Hygiene. Community Health Profiles by Borough, 2018, https://www1.nyc.gov/site/doh/data/data-publications/profiles.page

Mental Hygiene, 2018).

Healthcare indicators add to the story. Although Bronx residents had equivalent rates of health insurance coverage as all New Yorkers, they were twice as likely to experience avoidable hospitalizations (see Table 3), suggesting that actual access to care (e.g., available transportation, childcare, paid sick time), timely access to care, and quality of care contributed to poorer outcomes, including premature death.

The higher prevalence of DRD in the Bronx prior to the pandemic contributed to the higher burdens of COVID-19 on the residents. Bronx residents were more likely to report obesity, hypertension, diabetes, hyperlipidemia, and heart disease than all city residents, all of which have been identified as risk factors for COVID-19 mortality (New York State Department of Health and Mental Hygiene, 2020). For each of these co-morbidities, diet is a critical contributing factor. Moreover, for some low-income households, a recent national study showed, the pandemic exacerbated diets associated with obesity and DRD, a reciprocal relationship between the pandemic and DRD (Flanagan et al., 2021).

Other evidence suggests that residents of the Bronx have less access to affordable healthy food than other New Yorkers. Based on the 2020 food environment index score (University of Wisconsin Population Health Institute, 2020b), a component of the County Health Rankings which examines access to healthy foods and levels of food insecurity prior to the pandemic, the Bronx was rated as having one of the least healthy food environments in New York City. The ratio of bodegas (corner grocers) to supermarkets is higher in the Bronx than elsewhere in the city. Since bodegas generally stock more inexpensive, unhealthy food and charge higher prices for healthy food than supermarkets, this higher ratio may contribute to the reduced availability of affordable healthy food (Morland & Filomena, 2007). A recent study found that bodegas and dollar stores clustered in low-income areas of the Bronx with high rates of DRD (Cohen et al., 2020). Between 2011 and 2016, the number of fast food restaurants in the Bronx increased by 11% (U.S. Department of Agriculture [USDA] Economic Research Service, 2020).

At first glance, high rates of DRD in the Bronx, usually associated with overnutrition, and high rates of food insecurity, usually associated with undernutrition, may seem contradictory. But a growing body of evidence suggests that DRD and food insecurity have common causes and often coexist in the same families and populations (Weaver & Fasel, 2018). Moreover, DRD is associated with micronutrient deficiencies as well as too many calories, leaving those with constrained food budgets at risk of both.

The COVID-19 pandemic elevated the already high risk of morbidity and mortality from DRD in the Bronx via three pathways. First, by increasing unemployment, the pandemic reduced household income for food. Since healthy food is often more expensive than less healthy food (Drewnowski & Barratt-Fornell, 2004), this made it harder for low-income households—those with the highest risk for and burdens of DRD—to afford healthier food; not surprisingly, they substitute less expensive, less healthy food. Pandemic-related increases in food prices further reduced household food budgets (Asymkos, 2021). Second, the pandemic led institutional food programs and EFPs to substitute shelf-stable and easily transported processed products for fresh produce (Hunter College New York City Food Policy Center et al., 2020), increasing the portion of calories from calorie-dense foods high in fat, sugar, and salt, ingredients associated with an elevated risk of DRD. Finally, the pandemic reduced access to routine primary care (e.g., diabetes management and support, obesity and nutrition counseling, blood pressure monitoring, medication refills) that controls DRD, diminishing opportunities for primary and secondary prevention of these conditions (Wright et al., 2020).

The COVID-Food Syndemic

Three essential characteristics of syndemics are shared population risk predicated by persistent structural inequity, common social drivers for multiple conditions, and synergistic interactions among disease processes (Singer & Clair, 2003). In this section, we describe three ways that the COVID-Food Syndemic in the Bronx illustrates these defining features.

First, historical and persistent structural racism and economic inequities (Bailey & Moon, 2020) in the Bronx have created segregated housing and prolonged disinvestment in the community. This has concentrated populations of color in the Bronx, who are further marginalized by employment, wages, tax and credits, and other social policies and structures that widen economic inequalities. They are affected by multiple existing and emerging social drivers of poor health (Figure 1), creating characteristics that amplify risk for the three health outcomes that constitute this syndemic: food insecurity, DRD, and COVID-19 (Hill et al., 2021).

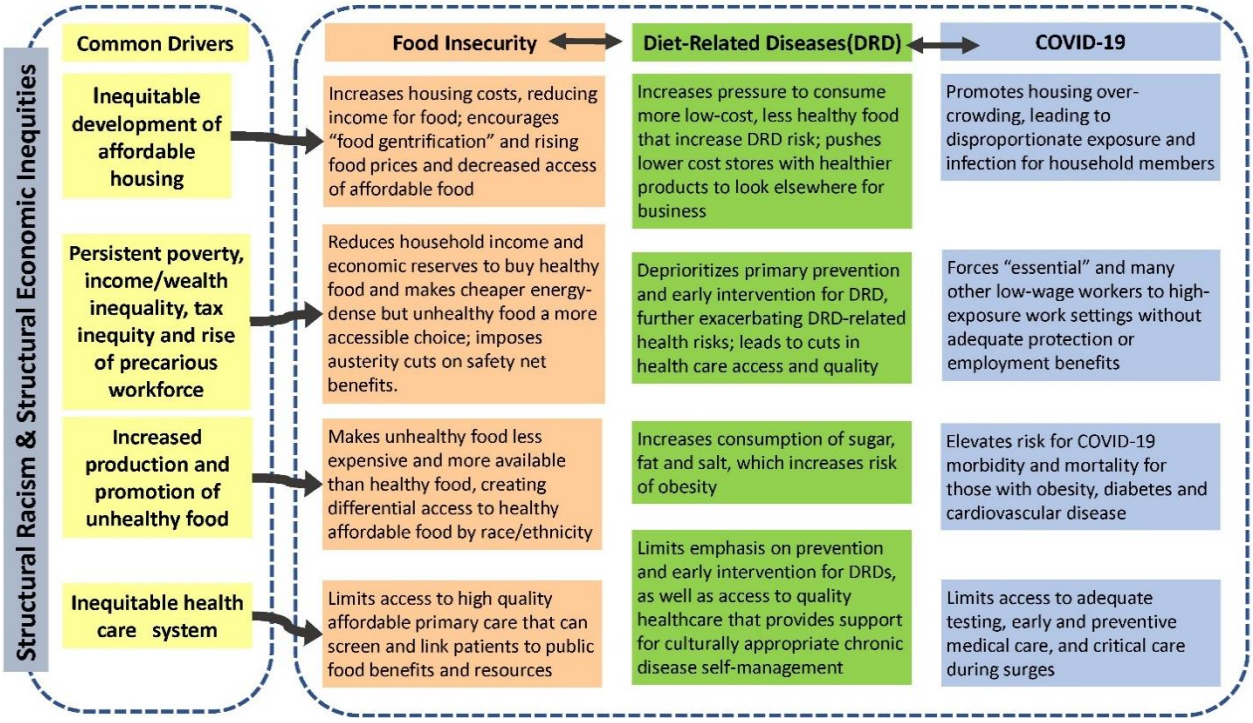
Second, syndemics are characterized by biological interactions between disease states and interactions between those biological processes and the social, economic, and power inequities that shape the distribution of diseases (Gravlee, 2020). Biosocial interactions within syndemics move in both directions: social inequities shape the risk of COVID-19 infection, illness, and death, and the pandemic also led to devastating job losses that have disproportionately affected Black and Latinx Americans, further increasing their risk for housing instability, food insecurity, and widening educational inequities (Gravlee, 2020).

Third, COVID-19 exacerbates racially inequitable access to healthcare and disrupts prevention and management of DRD, conditions more common in Black and Latinx populations. As a result, racial and economic inequities in health widen. Food insecurity increases the consumption of less expensive, less healthy food, increasing the risk for DRD, and in turn, DRDs put individuals with COVID-19 infection at increased likelihood of serious illness or death. Income inequality and precarious work (Hawkley, 2018) exacerbate food insecurity, but also force workers to accept working conditions that increase the risk of COVID-19 infection. By using syndemic theory to identify and tackle the common social drivers, this analysis provides a rationale and roadmap for a coordinated and unified response to these three threats to health (Singer et al., 2020).

Limits of Siloed Municipal Responses in Reducing Syndemic

Municipal governments have long been characterized by and criticized for a siloed approach to gov-

Figure 1. Common Social Drivers of Food Insecurity, DRD, and COVID-19



ernance and service delivery. Siloization persists in part because it can have advantages in specific cases: it enables the application of specialized knowledge to technical problems, facilitates political control over bureaucracies, and can contribute to more rapid decision-making and implementation (Scott, 2020). However, siloed approaches often miss opportunities for more synergistic and effective responses to common drivers. They limit the potential for mobilizing key community assets such as neighborhood organizations, social justice advocates, and grassroots community leaders. They deter building support for scaling up effective programs and policies, making them sustainable, and linking them to other sectors, tasks that require the all-of-government approaches that challenge siloed bureaucracies (Wolf-Fordham, 2020). In recent years, global and national health organizations have urged a "health in all policies" approach to ensure more effective implementation of intersectoral, multilevel interventions (Gase et al., 2013), Finally, siloed programs and policies are also vulnerable to budget cuts, especially during economic crises when elites insist that austerity in public spending is required (Korfmacher, 2019).

These limitations include programs and policies that:

- Depend on emergency and charitable programs that are reactive and not designed to be sustainable. The prepandemic food pantries and soup kitchens in low-income communities are unable to end food insecurity nor are they designed for long-term health (Poppendieck, 1999). The Bronx has had the highest number of EFPs as a Band-Aid solution for its long-standing food insecurity issues, while having some of the worst DRD outcomes.
- Often focus on remediating immediate consequences rather than addressing the more fundamental common social drivers that perpetuate vicious cycles of worsening health and health disparities. For example, despite the clear evidence that the fundamental causes of diabetes and diabetes disparities are the social determinants of health (Haire-Joshu & Hill-Briggs, 2019), New York Medicaid dollars cannot be spent on true barriers to healthcare access such as transportation, childcare, or paid sick leave.
- Use siloed approaches, missing opportunities for integration, efficiency, and synergistic impact and greater efficiency. Although Medicaid has created new programs to address social determinants, these approaches have been modestly funded and poorly coordinated (Bachrach et al., 2016), illustrating the challenges of using Medicaid to improve population health (Kartika & Rosenthal, 2017). New York State Medicaid funding, for example, fails to support community-based food organizations; until the pandemic school lunch programs have not worked with community-based food vendors; and emergency housing does not accommodate basic public health practices such as bathing, privacy, and safety. In the Bronx and around the nation, this lack of community-level intersectoral collaboration compromises the efficacy of social interventions (Minkler, 2018).
- Rely on top-down or bottom-up strategies rather than a combination of the two, missing both the power of whole-government approaches and the political impact of community-driven mobilizations. Thus, New York state and city governments work separately on COVID-19 testing, PPE distribution, and vaccination. Essential workers in food, education, and healthcare are not systematically protected, and uncoordinated and episodic philanthropic handouts often fail to consult community residents and leaders about their needs (North Bronx Mutual Aid, 2020).
- Fail to recognize and mobilize the substantial knowledge and assets of communities and their leaders to combat threats to their residents' health. For example, government agencies often rely on one-way communication with communities and do not engage residents in designing emergency responses. When more equitable partnerships are created, they may achieve positive results, as demonstrated by the Claremont Healthy

Village Initiative, a multisectoral partnership based in the Bronx (Realmuto et al., 2020).

Role of Community Activism in Reversing the Syndemic

Unlike governments' tendency of working in silos, we argue that community activism tends to approach issues from a more holistic, community-driven lens, and thus embrace comprehensive solutions to reverse the syndemic. For the last 50 years, the Bronx has been an incubator of food and social justice activism. In the 1970s and 1980s, United Bronx Parents fought to expand and improve school food programs (Povitz, 2019). In the late 1990s, La Familia Verde, a coalition of community gardens in the Bronx, started to grow food and then expanded to take on other tasks including community development and voter registration (La Familia Verde, n.d.). After the U.S. County Health Ranking Report reported in 2009 that the Bronx had the lowest health ranking of all of New York State counties, a coalition of health, community-based, and faith-based organizations, as well as elected officials, created Not62: The Campaign for a Healthy Bronx, a communitywide mobilization designed to lift the Bronx from its low ranking (Olumhense & Choi, 2020). Improving food environments was a key part of its platform.

Today, thousands of Bronx individuals and organizations already work to improve their standard of living and take on the drivers of the COVID-Food Syndemic. Table 4 lists a few examples of Bronx organizations that are already embracing a syndemic perspective by taking on common drivers (e.g., structural racism, economic inequity, affordable housing, precarious work, food system, healthcare system) that shape the COVID-Food Syndemic. They offer programs and services related to all three outcomes of the syndemic (food insecurity, DRD, and COVID-19) and assist their constituencies in addressing the intersecting impact of the three conditions, for example by preventing evictions, finding healthy affordable food, and enrolling in comprehensive primary care. These civil society activist approaches help community residents to utilize the categorical public programs to make more integrated and meaningful improvements in their living conditions. Many are led by Black and Latina women, constituencies with long track records of improving living conditions in the Bronx and throughout urban America (Povitz, 2019).

Most importantly, by mobilizing community residents and relying on their experience in addressing deep-seated community problems, these organizations tap into the human capital that is the most valuable resource of low-income urban communities. While these groups have not explicitly articulated a syndemic perspective, their actions demonstrate an understanding of shared fundamental causes, the reality of the intersecting manifestation of food insecurity, DRD, and COVID-19 in the lived experience of many Bronx residents, and the power of a comprehensive and collective social justice approach to improving health. In the future, health activists may find that using a syndemic framework might help them to enlist public officials and policymakers in generating more systemic responses to the health challenges that the Bronx and other low-income urban communities face.

By supporting, nurturing, and leveraging this energy and passion, and by finding ways to align its power with the capacity of public officials, public agencies, and local businesses willing to work for a healthier and more equitable Bronx, New York City, and nation, health professionals and community advocates can contribute to reversing the multifaceted syndemic that threatens the future of the Bronx and urban America.

A New Syndemic-Informed Approach: Recommendations

In the short run, Bronx residents, community organizations, and national, state, and local governments will continue to launch categorical, often siloed responses to reduce the problems posed by food insecurity, DRD, and the COVID-19 out of necessity. But the limits of these responses, illustrated by temporary expansions of emergency food programs and repeated extensions of eviction moratoria, and the profound challenge the COVID-Food Syndemic poses to the well-being of the Bronx, require public health and healthcare practitioners, researchers, and advocates to consider other approaches. By using the glaring spotlight of

Table 4. Selected Current Bronx Community Initiatives to Address COVID-Food Syndemic

		Addresses			
Name of Initiative	Description and Web Link	COVID-19	Food Insecurity	DRD	Other
Bronx Health Reach	This coalition of more than 70 community-based organizations, health care providers, faith-based institutions, housing, and social service agencies works with community members, coalition members, partners, and funders to eliminate racial and ethnic disparities in health outcomes in the Bronx; key founder of Not62: The Campaign for a Healthy Bronx (see below). https://institute.org/bronx-health-reach/about/	X	X	X	Access to quality primary care
Bronx Rising Initiative	This effort distributes critical resources across the Bronx in response to the COVID-19 pandemic's disproportionate impact on the borough. It blends mutual aid, vaccine campaigns, volunteerism, philanthropy, and small business development. https://www.bronxrisinginitiative.com/	X	X		Economic development
Bronx Works	A human service organization and settlement house that helps individuals and families improve their economic and social well-being by feeding, sheltering, teaching, preparing for workforce, and supporting residents to build a stronger community. http://www.bronxworks.org/	X	X	X	Employment Housing
Mott Haven Community Fridge	An outdoor refrigerator that provides all community members with 24-hour, no-questions-asked access to fresh food. https://www.facebook.com/motthavencommunityfridge/	X	X	X	
New Settlement Apartments	This settlement house provides housing to more than 1,000 families and offers services in education, college access, youth development, arts, workforce development, community organizing, wellness, and food. Its recent neighborhood health plan[a] called for an expansion of local farmers markets, improvements in food retail outlets, and creation of a local food policy council. https://newsettlement.org/	X	X	X	Housing, employment, family support
Not62: The Campaign for a Healthy Bronx	Through collaboration and partnership across multiple sectors, Not62: The Campaign For a Healthy Bronx seeks to address the social and economic conditions that affect the overall quality of life, and help create an environment where Bronx residents can attain their highest level of health. https://www.facebook.com/not62BX/	X	X	X	Community organizing and political advocacy
Rivers Run Community Garden	Grows food adjacent to Coop City, the largest cooperative housing development in the world. During the pandemic, it distributed Milk Crate Gardens to seniors living in the area so they could grow a small amount of fresh food. https://www.facebook.com/RiversRun	X	X	X	Health needs of older people

[a] https://newsettlement.org/food/wp-content/uploads/sites/5/2020/12/Jerome-Neighborhood-Health-Plan-Recommendations_20201016_Signed.pdf

the pandemic to illuminate different responses to business-as-usual approaches to restoring the health and economy of the Bronx and reducing its persistent social and economic inequities, a syndemic-informed strategy may provide lessons that could benefit all urban America.

In doing so, the people of the Bronx and other low-income communities can begin to overcome some of the limitations of current responses to the health threats that constitute the COVID-Food Syndemic.

Our analysis of the cumulative impact of food insecurity, DRD, and COVID-19 on the Bronx suggests several components for more holistic, comprehensive, and effective responses. Rather than posing incremental or transformative approaches as a binary choice, a more comprehensive strategy would help health professionals, researchers, and advocates to align and coordinate interventions that can ameliorate the downstream consequences of the syndemic while also opening paths to more transformative upstream changes (Freudenberg et al., 2015). In responding to COVID-19 and previous health crises, community residents, sometimes with the support of academics, have used community-based participatory research and community organizing to contribute evidence and mobilization that has led to meaningful changes (Michener et al., 2020; Minkler, 2018; Wallerstein et al., 2017). In addition, rather than seeing municipal government and community-based civil society and activist groups only as contestants battling to shape more effective policy responses, these actors can align their efforts to create synergies that rely on the differing strengths of each approach. For example, the Pandemic EBT (P-EBT) program (USDA Food and Nutrition Service, 2020) uses federal funding to enable families of schoolchildren—regardless of their income or documentation status—to use a voucher to replace school food missed because of closed schools, which opens a path for ending the exclusion of many immigrants from public food assistance.

What might such a municipal government–community-aligned approach include? First, it should make increasing access to healthy affordable food a priority by expanding and improving distribution channels for vulnerable populations to ensure that they do not experience hunger or food insecurity. As long as unhealthy products are cheaper and more available than healthy food, it will be difficult to reduce the influence of poor diets on the health of residents of low-income areas in the Bronx and elsewhere. Key strategies for making healthy food more available include improving institutional food in schools, senior centers, jails, and hospitals; subsidizing healthy food through public farmers markets, community supported agriculture, and other fresh healthy food suppliers; and expanding, streamlining, and sustaining existing municipal food programs that promote food equity. For example, P-EBT vouchers could be used to create incentives for purchasing more fruits and vegetables, an innovation that could sustain local farmers markets and greengrocers, thus supporting local businesses that make healthy food more available (Fraser et al., 2021).

Prior to the pandemic, the New York City Mayor's Office of Food Policy coordinated several programs designed to improve access, purchasing power, and nutrition education (City of New York, 2019). In addition to federal resources, in FY 2020 the city set aside US$976 million—about 1% of the city's budget—to deploy an array of programs to bring healthier food options to low-income neighborhoods, incentivize healthier food choices by increasing purchasing power at farmers markets, and increase nutrition and cooking education (CUNY Graduate School of Public Health & Health Policy, & CUNY Urban Food Policy Institute, 2019). These programs have been implemented through various interagency efforts led by the New York City Department of Health and Mental Hygiene through its Neighborhood Health Action Centers.

To date, however, these programs, which illustrate the potential for community-municipal government partnerships, have not been brought to scale, even in low-income neighborhoods, thus missing the opportunity for a synergistic impact on health and local economic development. Even though these programs are motivated to drive collective impact and create comprehensive solutions, they have not had the resources for meaningful evaluation nor equitable expansion. By encouraging

the city government to expand and scale these programs, community activists could support a cost-effective public investment in improving access to healthy food in neighborhoods hardest hit by the syndemic. Since these programs already engage neighborhood organizations to extend their reach, investing in both food programs and infrastructure development for these groups could contribute to stronger local economies, improved food access, and greater community capacity for problem-solving.

In the long run, shrinking the inequities generated by the syndemic will save taxpayers money. During the current economic crisis, large food companies, many of which have gotten taxpayer relief during the pandemic, avoided taxes through tax breaks, paid their workers such low wages that they had to rely on SNAP and Medicaid to survive, and aggressively promoted unhealthy products to populations at the highest risk of COVID-19 and DRD (Global Health Advocacy Incubator, 2020). Making corporate tax policies more equitable and reforming a tax code that enables food companies to deduct the expenses of marketing unhealthy food to vulnerable populations (Sonneville et al., 2015) could reduce incentives for practices that exacerbate the syndemic.

Second, a comprehensive approach should increase affordability, quality, and access to comprehensive primary care. Primary care should be the first place people go to seek healthcare, whether to treat symptoms of illness or prevent illness. Effective primary care can identify food insecurity through screening, provide early intervention services for DRD, and link individuals to food distribution programs, nutrition and obesity prevention counseling and education, and SNAP or WIC enrollment. By intervening before health problems become substantive threats to well-being, self-sufficiency, and productivity, integrated primary care support can be most effective for at-risk patients. Healthcare payers (Medicaid being the largest) can play a significant role in supporting the integration of these services. Managed-care plans have access to the populations who are most affected by this syndemic and can identify increasing demand for healthcare in order to advocate for an increased supply and the resources to support it. In the Bronx, community organizations already work with health plans to reduce asthma and diabetes hospitalizations and engage patients with DRD in hospitals' fitness and nutritional cooking programs (Mitchell, 2020; SBH Health & Wellness Center, n.d.). These programs should be scaled up to further reduce preventable hospitalization and healthcare costs. To date, state initiatives to expand access to primary care have operated mostly through academic medical centers, organizations that often put their institutional needs ahead of the needs of the community. By assisting community-based organizations to claim a larger voice in redesigning primary care to meet their needs (Myers et al., 2019), health professionals and activists can modify these currently asymmetrical power relationships.

Third, a comprehensive strategy should improve pay, benefits, living conditions, and safety for workers who live or work in the Bronx. This approach would increase pay and require minimum wages; enforce occupational safety and health policies; increase the supply and affordability of safe, quality housing; increase subsidies for child care; and offer subsidies for public employment. Leaving essential workers with subminimum wages, limited or no employment benefits, and dangerous working conditions elevates the risk for food insecurity, DRD, and COVID-19 for a substantial portion of the Bronx's workforce. Substandard housing heightens the infection risk of these workers' families, and such housing is still severely unaffordable, reducing the disposable income that could otherwise go toward feeding their families. Another way of increasing income is to expand and sustain economic stimulus support and public benefits to increase the affordability of healthy food. By aligning Bronx food justice activism with New York's rich history of labor activism, these forces could work with city and state governments to strengthen recent gains in living-wages laws, paid sick leave, and workers protection (Greenhouse, 2018) that have especially benefited low-wage food workers in the Bronx.

Finally, a comprehensive plan created collaboratively by the government and civil society must make dismantling systemic racism a priority. In the Bronx, the apartheid organization of food, health-

care, housing, and employment creates a cascade of risks and adverse consequences. This constellation helps ensure the Bronx remains the least healthy county in New York State. Beginning to dismantle the myriad public policies, norms, and institutional practices that maintain health inequities is an essential step toward ending the COVID-Food Syndemic in the Bronx. To break the vicious, synergistic cycle of the COVID-Food Syndemic, a new approach must tackle the historic, fundamental drivers of the syndemic, racism and economic inequality, as well as the emerging social determinants of health equity—what social epidemiologists call the causes of the causes (Braveman & Gottlieb, 2014). By moving beyond only symptomatic, proximal manifestations of the problem, this approach promises meaningful improvements in health and health equity over the long run.

Taking on the most fundamental drivers of the COVID-Food Syndemic will also require changes in formal and informal governance. City officials and community leaders will need to create new spaces in which they can forge common agendas. During the first months of the pandemic, some city agencies did use new technologies to engage more fully with leaders and frontline workers, but these discussions reverted to the more one-way, business-as-usual format as the response was routinized. On the civil society side, new alliances also emerged. The New York COVID-19 Food Coalition brought together dozens of food justice and food security organizations, many in the Bronx, to identify common problems, share best practices, and advocate for more forceful responses to the inequitable impact of the pandemic. The group also cosponsored a forum on food policy for candidates for the city's 2021 mayoral election, an event that forced the candidates to become familiar with key food policy issues (Geringer-Sameth, 2021). These new collaborative efforts could serve as leverage points for sustainable transformation (Abson et al., 2017). By continuing to develop intersectoral, cross-cutting processes for debating and defining pandemic responses, these groups can nurture the ongoing interactions needed to build a sustainable process for addressing upstream determinants of the COVID-Food Syndemic.

In sum, for the past several decades, the Bronx has tried mostly uncoordinated, mostly downstream, mostly top-down approaches to reducing its most serious threats to well-being. To date, these approaches have not ameliorated the health ranking of the Bronx, nor mobilized sufficient political will and power to reverse the trends that put residents of the Bronx at egregious risk. Our analysis of the COVID-Food Syndemic suggests that a more effective approach would integrate top-down with bottom-up strategies, engage residents and community organizations already working for social change more fully, take on the common social drivers of the area's most serious health and social problems, and make dismantling racism a top priority. The organizational and political obstacles to such a strategy are formidable. But the evidence to date suggests that the business-as-usual approach will doom the Bronx to continuing generations of poverty, inequities, and poor health. COVID-Food Syndemic not only illuminates the limits of the current approach, but also creates opportunities and momentum for more transformative changes. In the Bronx, the building blocks for such an approach are in place. By leveraging these assets now, civil society, municipal government, and the flourishing social movements that are tackling inequity can lay the foundation for healthier, more equitable communities.

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[a] https://www.facebook.com/not62BX/

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Using common practices to establish a framework for mobile produce markets in the United States

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Abstract

Access to affordable fruit and vegetables (F&V) remains a challenge within underserved communities across the United States. Mobile produce markets (mobile markets) are a well-accepted and effective strategy for increasing F&V consumption in these communities. Mobile market organizations share similar missions that focus on food, health,

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and empowerment, participate in incentive programs, offer nutrition education, utilize grassroots-based marketing strategies, prioritize local produce, and sell competitively priced produce through a market style. While mobile markets have become increasingly prevalent, models vary widely. Establishing standardized practices is essential for ensuring the effectiveness and sustainability of this important food access program. This research seeks to identify common practices of established mobile markets and describe the resources they rely on.

Keywords
Diet, Food Access, Implementation, Public Health Practice, Mobile Market, Lower-Income

Introduction

Effective, sustainable, and culturally acceptable interventions targeting underserved populations are needed to reduce disparities in dietary intake and decrease the prevalence of diet-related diseases such as heart disease, type 2 diabetes, obesity, and some cancers (Braveman et al., 2010). Fruit and vegetable (F&V) consumption is significantly lower in lower-income neighborhoods and communities of color and may be a contributing factor to disease risk (Grimm et al., 2012). Limited access to F&V has been identified as a barrier to consumption, spurring an emergence of research and strategies to increase access to healthy food (Haynes-Maslow et al., 2015; Haynes-Maslow et al., 2013; Kasprzak et al., 2020; Zenk et al., 2011). Mobile produce markets, or mobile markets, are small markets that travel to communities to distribute and sell F&V (Hsiao et al., 2019). To address growing health concerns, mobile markets have grown in number and popularity throughout the U.S. (Hsiao et al., 2019).

Research indicates mobile markets are a viable solution for improving the food environment through increased availability and access to F&V. There is growing evidence of their effectiveness in influencing F&V purchase and consumption (Hollis-Hansen et al., 2019; Hsiao et al., 2019). More rigorous and large-scale evaluations of mobile markets show an increase in F&V intake ranging from one-half to one cup per day (Gans et al., 2018; Leone et al., 2018). Among food access programs (e.g., community gardens, healthy corner stores, etc.), mobile markets are perceived favorably among lower-income communities if convenience and affordability are ensured (Haynes-Maslow et al., 2015; Kasprzak et al., 2020; Zepeda et al., 2014). However, vulnerable populations have expressed a limited awareness and understanding of mobile markets and a reluctance to trust new vendors due to concerns surrounding the organization's motives and mission (Kasprzak et al., 2020; Zepeda et al., 2014). Therefore, ample and strategic community engagement should take place before establishing a market in a new community.

Organizations that start mobile markets, primarily nonprofit entities, avoid some business risks associated with "brick and mortar" stores and can quickly adapt to communities' needs (Hollis-Hansen et al., 2019; Leone et al., 2019). However, many organizations face challenges with community and organizational sustainability (Zepeda & Reznickova, 2016). Although there is growing interest in evaluating the impact of mobile markets on health, little is known about operational mechanics and what set of practices maximize the likelihood of reaching the target population and sustainability. Identifying common practices will provide a precedent for new markets to follow, avoiding the trial-and-error process that established mobile markets have previously experienced. Furthermore, the adoption of a standard set of practices by mobile markets will allow researchers to investigate whether a well-run mobile market can create positive change and facilitate replication and comparison across communities. Identifying common practices among mobile markets also helps to further legitimize this food access strategy. For example, while some states have established their own criteria, there is a lack of clarity in how a mobile produce market is defined by the United States Department of Agriculture (USDA). Summarizing practices can provide a framework to understand mobile market operations, prompting federal agencies to establish an accepted definition and facilitate organizations' participation in federal nutrition assistance programs (e.g., Supplemental Nutrition Assistance Program [SNAP], Women, Infants, and Children Program [WIC], Farmers

Market Nutrition Program [FMNP]). Finally, raising awareness and understanding of mobile markets may encourage researchers, policy-makers, funders, and other stakeholders to recognize the importance of mobile food access programming.

Most extant mobile market-focused research has been conducted with customers, with few studies focusing on operators. Studies that have surveyed organizations looked broadly at mobile food vendors, including those that sell nonproduce items, to assess the food environment (Lucan et al., 2014) and the proximity of vendors to each other and their target population (Lucan et al., 2013). Only three studies have focused more narrowly on the processes of mobile produce markets. Robinson et al. (2016) conducted 11 in-depth interviews with representatives from a single mobile market in Syracuse, New York, and observed 16 market sites operated by two organizations. Weissman et al. (2020) surveyed 50 U.S. and Canadian mobile markets. Zepeda and Reznickova (2016) conducted case studies in six U.S. communities with mobile markets. Our study furthers this research by focusing on more established mobile markets that have operated for at least two full years and by asking a broader scope of questions (e.g., community engagement, successes). The goals of this research are to use in-depth interviews with mobile market operators to identify common practices of established mobile markets and work towards establishing a framework for mobile produce market operations. We also summarized operators' perspectives on the resources that most contributed to their success.

Methods

Recruitment and Enrollment

In the spring of 2018, a database of mobile market organizations was created by identifying organizations through word-of-mouth, internet searches, and a mobile market listserv. An outreach email was then sent to potential key informants (KIs) to briefly explain the study and direct them to a screening survey on the study's website. Potential KIs answered questions related to their organization's structure, duration of operations, and interest in being interviewed. Those who completed the survey were contacted via email or phone to verify their interest in the study and that their mobile market was operating.

KIs were eligible if they worked with organizations operating a mobile market in the U.S. for at least two years, were interested in sharing information about their market, and could speak to its model and sustainability. Of the initial 60 organizations contacted, 27 completed the survey, and 19 were eligible and interested. Of the remaining 33 mobile markets that did not complete the survey, five were successfully reached. Of these five, three were either ineligible or not interested, and two enrolled. Phone interviews were scheduled with the staff member(s) most familiar with the history and operations of the mobile market. Organizations that did not meet the eligibility criteria were encouraged to participate in other research and networking opportunities. This study was approved by the University at Buffalo Institutional Review Board.

Interview Process

Two researchers conducted semistructured phone interviews lasting up to 90 minutes between May and November 2018. The research team developed the interview guide, drawing on collective experience in operating and evaluating mobile markets and similar programs. The guide focused on market models; logistics and operations; community engagement and marketing strategies; staffing, nutrition education, and ancillary services; procurement and pricing; program impact and evaluation; and business and financial models. The majority (n=19) of KIs agreed to identify their organizations in the findings so that case studies could be developed, and the study team could facilitate networking and information sharing between organizations. KIs were compensated US$50 for each interview.

Data Analysis

All interviews were recorded, transcribed, and checked for accuracy. Data analysis was completed using the qualitative software program ATLAS.ti version 8.0. Transcripts were divided between two graduate research assistants to code utilizing a codebook of themes informed by the interview guide. Reports were generated for all codes and

summarized each theme (e.g., organizational structure) across all mobile market organizations. Memos were written to summarize each code report, and frequency distributions were calculated for specific themes.

Results

Twenty-five KIs representing 21 mobile markets participated in interviews (four organizations had two participants). No KIs withdrew from the study. Table 1 includes mobile market organization characteristics. The KIs represented organizations from 16 states and 19 cities in the U.S. The majority (*n*=14) serve predominantly or exclusively urban areas, with the remaining serving a mixture of urban, rural, and suburban (*n*=5) or exclusively rural (*n*=2) areas.

Organizational Structure

Table 1 indicates the organizational structure of the represented mobile markets. The majority (*n*=17) are managed by a parent agency with missions to build and strengthen resilient food systems, empower communities, address food insecurity, and reduce health disparities. Separate but complementary services are commonly offered. Organizations serve a similar target market described in many ways but generally recognized as high-need and lower-income. Funding is often from a combination of sources but is predominantly from federal and regional grants and, to a lesser degree, produce sales. Other common funding sources include corporate sponsorship, fee-for-service events, philanthropy and donations, or entities such as a city/municipality, parent organizations, or foundations.

Staff may work directly at the market or indirectly in administrative or coordinating roles, and many markets share staff with other programs run by the parent organization. The number of market staff and the split between paid full/part-time staff and unpaid volunteers are highly variable among organizations; there is less variability for direct market staff with a range of one to three paid and one to five volunteers (mostly seasonal workers). It is common for employees to be responsible for several tasks, including running the market, customer service, cashing out customers, managing inventory, driving the vehicle, etc.

Market Operations

All organizations use a model that emulates a farmers market experience, selling produce per item and permitting choice by customers. The rationale behind adopting this model was to create a familiar retail experience that allows for the "dignity of choice." However, some organizations (*n*=4) also offer a preset box program similar to a community supported agriculture program (CSA). Most organizations utilize one to two trucks, vans, or busses to transport produce to sites and set up the market on the vehicle's perimeter or within the host site, with few organizations operating the market exclusively within the vehicle. Regardless of vehicle or setup, organizations may adapt to cold climates by moving indoors. It is common for organizations to retrofit their vehicles to meet their specific needs, although the types of upgrades vary (e.g., storage, generators, solar panels). Few organizations have refrigerated vehicles and therefore invest in standalone or retrofit refrigeration for the vehicle or operations hub (e.g., Cool-Bot system, coolers, refrigerators).

Most organizations operate their market for at least half the year, with some running year-round (*n*=8). The weekly market schedule ranges from two to six days, averaging four days. The number of weekly market stops ranges widely (3–75), but organizations typically operate a market from one to four hours, with two hours being optimal. However, KIs cautioned there is no "hard and fast rule" for scheduling as it is highly dependent on the host site, customer demand, climate, staffing, and vehicle availability.

Prices are often set informally based on trial-and-error and comparing prices to local retailers. Some organizations reported that they had more methodical pricing strategies in the past but then shifted to a more flexible approach that allowed them to respond to what customers are able and willing to pay, often in real-time. Several organizations sell produce close to or at the price they purchased it; when markups are used, they are applied within the range of 10–45% from the purchase price, with most falling in the 10–20% range. Most organizations perceive their pricing to be compara-

Table 1. Mobile Market Organization Characteristics

Region of the U.S.	Number of Mobile Market Organizations	Target Market	Percentage of Mobile Markets (n)
Northeast	10	Low to moderate-income individuals; demonstrating a need for food assistance (SNAP recipients)	86% (18)
South	6	Populations vulnerable to health disparities and chronic disease (seniors, housebound, racial and ethnic minorities)	76% (16)
West	3	Limited access communities (lack of fresh food, lack of transportation)	52% (11)
Midwest	2	—	—

Years Operating	Percentage of Mobile Markets (n)	Community Partners/Host Sites	Percentage of Mobile Markets (n)
3 years	19% (4)	Health care providers (clinics,[a] VA medical center)	81% (17)
4 years	29% (6)	Community centers (general,[a] senior,[a] youth afterschool, YMCA)	81% (17)
5 years	19% (4)	Housing (low-income,[a] transitional, assisted living)	57% (12)
6 years	5% (1)	Public institutions (libraries,[a] primary and secondary education)	48% (10)
7 years	19% (4)	Public space (vacant lot, street parking, farmers market, community gardens)	24% (5)
8 years	5% (1)	Private companies (retail space, insurance company, law firm)	24% (5)
9 years	5% (1)	Government and social service providers (food pantry, WIC clinic,[a] health departments, departments of social services, Head Start)	24% (5)
—	—	Faith-based organizations (church)	19% (4)

[a] Cited as a busier site

Organizational Structure	Percentage of Mobile Markets (n)	Ancillary Services	Percentage of Mobile Markets (n)
Nonprofit (Other)	48% (10)	Education (gardening, nutrition, youth and leadership)	57% (12)
Nonprofit (Hunger Relief/Food Bank)	14% (3)	Agricultural activities (composting, vermiculture, urban and community farming)	52% (11)
Nonprofit (Hospital Network)	10% (2)	Public health programming (healthy corner stores, corporate wellness, Veggie Rx, farm to institution, SNAP matching)	38% (8)
Stand-alone Mobile Market Nonprofit	10% (2)	Produce sales (farmers markets, farm stands, CSA)	24% (5)
Nonprofit (Foundation)	5% (1)	Food aggregation and distribution (food hub)	14% (3)
Nonprofit (Public Health Entity)	5% (1)	Policy and advocacy work; coalition building	14% (3)
University/College	5% (1)	Emergency food assistance (food pantry, dining hall, meal and food box distribution)	14% (3)
City/Municipality	5% (1)	Professional development (job readiness training, internships, GED)	14% (3)
—	—	Public health promotion and outreach (SNAP enrollment, health screenings)	10% (2)
—	—	Foodservice (community kitchen, business incubator)	10% (2)
—	—	Community improvement (beautification, safety)	10% (2)
—	—	Social services programming (housing support)	10% (2)

ble to grocery stores and less than farmers markets, colloquially described as "somewhere in between a Walmart and a Whole Foods price" and "as low as possible." To further increase the affordability of produce, all organizations accept SNAP/EBT. Nearly all organizations participate in at least one F&V incentive program, including SNAP matching programs, regional-specific healthy food incentive programs, and Seniors' and Women, Infant, and Children (WIC) Farmers' Market Nutrition Program (FMNP) benefits. Organizations often create incentives to cast a wider net of eligibility to include lower-income customers not receiving SNAP benefits but receiving other government assistance (e.g., Medicaid, disability). Organizations may render incentives at the point of sale (e.g., vouchers, discounts, reward cards) or distribute vouchers throughout the community (e.g., events, health fairs).

All organizations offer some form of nutrition education, with most utilizing partner organizations (e.g., Extension office, health clinic, nutrition students/interns) to offer education on a weekly or biweekly basis, typically at the market or within the host site. Education can take on many forms, such as mini-lessons or pop-up grocery store tours; however, cooking demonstrations and tastings are the most popular among customers. Education can also be informal through distributing materials (e.g., recipes and handouts), engaging in conversation on handling or preparing produce, and inviting community partners to table at the market.

Site Selection and Agreement

The majority of market sites are created through partnerships with community organizations that are already serving lower-income communities. Other methods of identifying sites include familiarity of high-need and food-insecure areas, community demand, trial-and-error, utilizing a food environment map, and findings from past food access research. When choosing to partner with prospective community sites, all mobile market organizations prioritize need—meaning there must be a high density of lower-income and/or SNAP-eligible households in the vicinity. Common host partners, including sites with the largest and most consistent customer base, are included in Table 1; however, there was not complete agreement as to which sites are the busiest. For example, one KI described health clinics as busy, whereas another KI cited health clinics as slow. Another KI explained there is great variation between sites of the same type.

Most organizations screen potential sites by meeting with a point of contact and having an informal agreement, or mutual understanding, with host sites regarding expectations for operating the market. However, some organizations create a memorandum of understanding or a similar contract. Organizations typically assess if the site is a good fit in terms of physical requirements (e.g., parking, bathrooms), capacity (e.g., marketing efforts, outreach), and viability (e.g., target market reach, volume). An organization's expectations for each host site are site-dependent, and organizations largely "meet them where they are." Still, community outreach and marketing are primarily the responsibility of the mobile market organization or a shared responsibility with the host site.

Procurement and Logistics

Produce is sourced from a combination of wholesalers, aggregators, produce auctions, direct farm procurement, an organization's own farm, and donated produce. While the percentages from different sources shift with the seasons and conditions, organizations are predominantly sourcing directly from farms. Factors influencing sourcing decisions include customer preference, climate, geography, price, the capacity of internal farm operations, linkages to farmers, and the overarching mission of the organization and/or mobile market. Almost half of the organizations (n=9) engage in some form of farming that may serve as a partial source of produce. All organizations recognize the importance of sourcing locally to support local farmers and the economy. KIs emphasized the need to balance this priority with their mission to provide affordable, culturally relevant produce that matches customer preferences while remaining financially sustainable. Organizations first attempt sourcing "as local as possible," and if the season or price does not permit this, they will opt to source regionally (within the state or neighboring states) and, if necessary, through a whole-

saler or distributor. About a quarter of the organizations are exclusively or almost exclusively sourcing locally, loosely defined by KIs as 100 miles or less from their location.

Organizations often want to support sustainable farming practices and procure more organic produce, but the price makes this prohibitive, and there has not been strong customer demand. Alternatively, organizations try to source produce that is Good Agricultural Practices (GAP)–certified or is grown using low-spray, integrated pest management, or organic-like practices. Markets carry a wide variety of produce (8–50 varieties), but 22–25 is the average range. Fruit is the consistent favorite among customers. Organizations commonly sell nonproduce items (e.g., eggs, canned and dried goods). Those with refrigeration at the market may offer nonproduce perishables (e.g., yogurt, cheese, meat, fish). All organizations have access to dry and cold storage at their operations hub, nearby storage, or refrigerated vehicle(s).

Marketing and Community Engagement

KIs highlighted the importance of laying a strong foundation before establishing a mobile market by engaging with the community early and often through community events or meetings (e.g., health fairs, neighborhood resident meetings), speaking engagements, and connecting with policy-makers. KIs emphasized that cultivating strong relationships and effective communication with host sites ensures market stops are viable and reach their target market. A small number of organizations have a community advisory board, and most are interested in forming or reviving one.

The most common marketing strategies employed by organizations include canvassing, flyers and signage, broadcast (e.g., TV, radio), print and social media, digital outreach (e.g., text messages, emailed newsletters), ad campaigns, direct mail, and the visual appeal of the market. Other common strategies include word-of-mouth, implementing a consistent market schedule, attending community events, and networking. Most KIs felt their organization is adequately reaching their target market but recommended persistence and patience for new markets given the time it takes to build trust and recognition at new sites.

Sales, Data, and Evaluation

The majority of organizations track sales and forms of tender (e.g., incentives) with point-of-sale software (e.g., Square, Farmers Register), with few using handwritten ledgers. Some organizations collect non-sales data, such as participation in assistance programs (e.g., SNAP), customer demographics, and feedback, through online platforms, paper surveys, or rapid market assessment. Many of the organizations have gone through some form of formal evaluation, often as a condition of funding. Formal evaluations have been carried out internally or in partnership with an external organization, such as a local university, and have measured variables including purchasing, demographics, customer and stakeholder feedback, sustainability, perceptions and connectedness to one's neighborhood, diet, and impact on the healthcare system. Less formal evaluations include self-assessments of market operations and collecting customer feedback. Table 2 contains quotes from KIs illustrating common practices for each theme.

Operator Perspectives on Resources That Contribute to Success

In addition to common practices, KIs were asked which resources are key to the success of their mobile market. Figure 1 depicts the most cited resources. Relationships with partners, both grassroots and government, are paramount. Organizational features that contribute to success include sharing resources with a parent organization, hiring strong staff, and securing corporate sponsorship or grant funding. The viability of market sites was attributed to the strategic selection of host sites and optimized scheduling. A reliable vehicle that is customized to a market's needs is also a valuable resource among organizations.

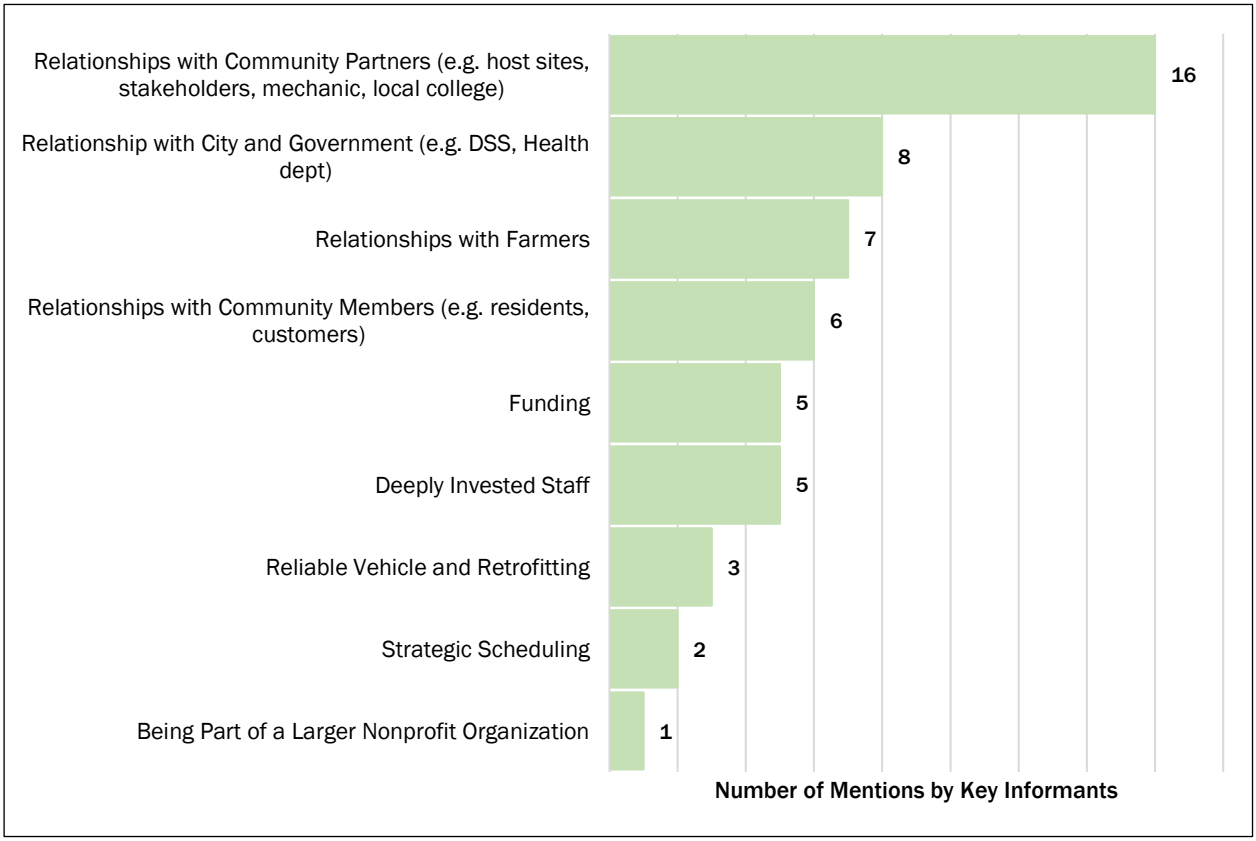
Discussion

Interviews with KIs revealed several core tenets of mobile market practices that have informed our proposed framework for mobile produce markets. The following are key characteristics of mobile markets: (1) set up temporary food markets in partnership with organizations already serving the local community; (2) uphold an organizational mission to create equitable food access, bridge health dis-

Table 2. Common Practices Illustrative Quotes

Theme	Subtheme	Common Practices
Organizational Structure	Mission Statement	"Our [organization's] mission is to build thriving communities through local food. But the mobile market mission is to directly improve the access to that local food." "Our mission is to promote community leadership and create access to healthy food for our most food insecure communities."
Market Operations	Market Set-up	". . . Honestly, we totally cater to our shoppers. If they would request that we bring it inside, then we'll bring it inside. Some of those locations, it's actually gorgeous, of course, we're going to set up outside. But again, we really cater to what they want and what they like because it's just a matter of business." "We set up outside the van, so it's not a walk-on vehicle, the whole vehicle is filled with the produce. We had done some retrofits because we were thinking it might be a walk-on, but the volume of sales we do it's not realistic for us. So it's really they're kind of popping up a farm stand everywhere we go. So, we have usually around four tables worth of produce."
Host Site Selection	Screening and Agreement	"It's been every year, and it's still we're still on a learning curve. I feel like I can figure it all out but what we really do is end up trying to identify strong community partners and areas of need and trying to develop relationships with businesses, nonprofits, property owners, whoever it may be, that we can identify as what we see as a successful stop. . . . We try and screen out for people who will and partners who [will] actually be engaged in helping us spread the word, whether that's a nonprofit that views us as a service for their clientele or a neighbor or a neighborhood organization that really wants us to meet the need of their clients as well." "I wouldn't say it's like an MOU, but we do have the application they filled out, and it's—we discuss like the terms that they need to be doing this outreach. And we do put in the application that they either need to meet our sales minimums or our visitor minimums."
Procurement and Logistics	Produce Sourcing and Priorities	"During the growing season, we source from local farmers as much as we can, but it's challenging because the cost of the food is higher with local farmers. So, what we've been doing is partnering with local farmers. We'll take kind of their excess stuff that maybe isn't, like their seconds and so they're not that as good to sell…and then everything else is purchased wholesale." "[During the growing season] we're mostly local, and during the rest of the season, we're probably down to about 10 percent local. The storage crops, apples, potatoes, onions, some squash, and then almost everything else is from wholesalers."
Marketing and Community Engagement	Outreach Strategies	"We attend events, we drop off flyers, we do speaking engagements, like we do all sorts of stuff. . . . I do know, the door-to-door flyering is the best thing for us." "I think a lot of it narrows down to community relationship. So, finding those allies in each neighborhood that we have, that are motivated and engaged and willing to spread the word for us. I mean it's [the] same as marketing or product word of mouth is the most popular and it's also the hardest to promote."
Sales, Data, and Evaluation	Types of Data; Means of Data Collection	"I wouldn't say like in a formal evaluation that we do like, season evaluation every winter, and like check, and 'Hey, how did this work? How did that work? Let's look at the numbers monthly, and like, are we on target for our transaction goals, are we on track for our average like, average market sales?" "That was done through a partnership with a local university, so we're using the systems that were developed in that first three food budget grants to do data collection."

Figure 1. Resources That are Key to Mobile Market Success



parities, and/or support local food systems; (3) operate a market model that permits customer choice; (4) sell produce and nonproduce items, prioritizing healthy, fresh food; (5) increase the affordability of F&V through pricing structure or incentive programs; (6) procure produce through multiple sources, but prioritize procurement of local and regional produce; (7) operate at least half the year; and (8) offer some type of food, nutrition, or cooking education. Areas with more variability in practices, which were excluded from the framework, include staff size and composition, vehicle type, specifics of funding and procurement sources, number of market stops, and scope and rigor of program evaluation. While most mobile markets primarily target lower-income individuals, we did not exclude markets that serve other demographics as we recognize that many markets serve multiple target populations, often using a sliding scale or cost-offset model to improve sustainability (Niebylski et al., 2015).

The findings of Robinson et al. (2016) align with the present study in terms of organizations' stated missions and target markets, procurement practices, competitive pricing, acceptance of financial incentives, and the importance of community engagement and relationship building. The current study also supports findings from Weissman et al. (2020) that most mobile markets are managed by a nonprofit, serve a predominantly lower-income and low-access target market, and mainly rely on grassroots-based marketing. Weissman et al. (2020) similarly found most organizations prioritize nutrition education, participate in incentives programs, price produce competitively, have a wide number of market stops, operate for at least half of the year, offer nonproduce staples, and prioritize local procurement with organic produce being less of a priority. They also reported sales alone do not cover operational expenses, citing private foundation money as the main source of funding (Weissman et al., 2020), while the KIs interviewed in this

study emphasized the importance of grant funding. The present study did not ask for percentages or dollar amounts of funding sources, which prevents a direct comparison to the findings of Weissman et al. (2020); nevertheless, the need to seek out additional funding sources and the variability between organizations is a shared finding. This study replicated many of these findings while providing additional details on practices that cannot be gained through quantitative studies.

The limitations of this research include the predominantly urban and Northeastern U.S. representation; therefore, these practices may not be generalizable to different geographies and communities. Not all KIs provided quantitative data for questions; therefore, numbers and averages supplied here do not represent all of the organizations interviewed. Given the exploratory nature of this research, we defined the success of a mobile market as longevity or the number of years operating. This broad eligibility criterion may not have adequately focused our attention on the most viable strategies. However, in the absence of an accepted definition of effectiveness for mobile markets and the scarcity of rigorous evaluations, we opted not to create eligibility criteria based on presumptions. Therefore, we are prudent in describing these practices as common practices rather than "best practices." Lastly, our findings represent established mobile markets and may not wholly include models and practices of more nascent markets. Therefore, we anticipate that this framework will be dynamic and subject to revision and updates.

Implications for Future Research and Practice

The present study furthers the research on mobile markets by helping to clarify common implementation practices and identifying effective, scalable, and ready models for broader adoption. A significant step toward standardization is the development of the Veggie Van (VV) Toolkit, a web-based collection of evidence-based practices to help organizations implement a mobile market following the VV model; the toolkit has been updated with these community-tested practices and made publicly available (Leone et al., 2018). Since the onset of the COVID-19 pandemic in the U.S., there has been a surge in new mobile markets; disseminating these practices in the toolkit reduces the burden on established organizations that are being solicited for guidance. These findings were also used to refine inclusion criteria for organizations that would participate in the VV study, an ongoing randomized controlled trial (RCT) evaluating the effectiveness and implementation of mobile markets. We also hope that our proposed framework will serve as an impetus for federal agencies, notably the USDA, to establish an accepted but flexible definition of mobile markets. In doing so, mobile markets will be recognized for their important role in the food system, addressing food insecurity, and ideally, streamlining policy processes that impact mobile market organizations.

Future research should continue to evaluate mobile market practices and create linkages with outcomes to further our understanding of how to ensure they are effective. Mobile markets have been deemed efficacious through evaluation in two RCTs on their impact on F&V consumption (Gans et al., 2018; Leone et al., 2018). However, F&V consumption is likely one of many outcomes that constitute researchers' and practitioners' notions of success. As such, we ought to understand how practitioners and community members define success and adjust our scope of research outcomes accordingly. Research is also needed to understand further how mobile market operations should be adapted to rural communities and how organizations have adapted their practices during the COVID-19 pandemic (e.g., pre-packed produce bundles). Lastly, the interviews in this study resulted in a significant amount of data beyond the common practices described here. We plan to report additional findings on common barriers experienced by mobile market organizations to highlight the support and resources needed to overcome persistent challenges.

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Gardening for change: Community giving gardens and senior food insecurity

Special issue:
Food as a Tool for Social Change

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Abstract

An estimated 5.3 million seniors in the United States are currently food insecure (Ziliak & Gunderson, 2020). Over the next few decades, these senior populations are projected to increase dramatically, which will only exacerbate this issue (Mather & Kilduff, 2020). Community giving gardens are an emerging strategy to increase food access and offer a solution to fight food insecurity locally (Chicago Community Gardeners Association, 2014; Furness & Gallaher 2018; Sutphen, 2018). This research seeks to answer questions related to rural, senior food insecurity through a case study of a long-term community giving garden project in Orono, Maine. Based on survey data and personal interviews, this study analyzes senior participation in the Orono Community Garden (OCG) program, the impact on participants' food security status, and senior participants' perceptions of the experience. The results indicate that the OCG program functioned to increase food access by providing fresh food deliveries directly to senior households in need, alongside a constellation of

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local food assistance programs located in Orono. Participants also viewed the OCG program as a source of destigmatized and socially acceptable food access, in contrast to other food assistance programs. Community giving gardens, like the OCG program, can be an effective tool to combat senior food insecurity by providing nutritionally adequate, destigmatized food access while building local food economies.

Keywords
Alternative Food Systems, Community Garden, Food Access, Local Agriculture, Senior Food Insecurity, Stigma, Social Change

Introduction and Literature Review

Food insecurity is pervasive throughout the United States. In 2018, 11.1% of Americans, or 37 million people, were considered to be food insecure (Coleman-Jensen, 2019; Feeding America, 2020a), defined as having limited or intermittent availability of nutritionally adequate and safe food accessible in socially acceptable ways (U.S. Department of Agriculture Economic Research Service [USDA ERS], 2019). Many food-insecure individuals utilize public food assistance programs and accept private food donations from food pantries and soup kitchens. However, these private aid agencies struggle to meet the needs of vulnerable, food-insecure populations.

Community gardens can provide significant food relief during times of economic struggle and help alleviate food insecurity (Kurtz, 2001). Giving gardens, such as the Orono Community Garden (OCG) program, are donation-model community gardens where fresh produce is grown, harvested, and delivered directly to the recipients who in this case are not actively engaged in growing the food themselves (Chicago Community Gardeners Association, 2014; Furness & Gallaher, 2018; Sutphen, 2018). Producing food to be given to people in need, community giving gardens offer a possible solution in fighting food insecurity, yet the impact of gardens on senior food insecurity is not fully understood. This research aims to explore the community garden model and rural, senior food insecurity through a case study of a long-term (15-year) community giving garden project in Orono, Maine, where food grown and harvested by volunteers is then donated to seniors living nearby. In addition, we look at the barriers to participation in food assistance programs and seniors' self-perception of their own food insecurity.

Senior Food Insecurity and Barriers to Participation in Food Assistance

The number of seniors (people aged 60 and over) in the United States is projected to more than double by 2060, then composing almost a quarter of the total population (Mather & Kilduff, 2020; Vespa et al., 2020). An estimated 5.3 million of today's seniors are food-insecure, a number that is only likely to increase as the senior population grows (Dooley, 2017; Ziliak & Gunderson, 2020). Older Americans are a particularly vulnerable population, often challenged with financial and health-related issues that are compounded by food insecurity (Dooley, 2017).

Several federal programs provide assistance, grants, food, and cash relief to low-income families, but only a few cater specifically to senior citizens, and these do not necessarily meet their needs (Dabrowska, 2017; Ratcliffe & McKernan, 2010). The USDA provides benefits to all vulnerable populations through programs such as the Supplemental Nutrition Assistance Program (SNAP) and the Emergency Fund Assistance Program (Dabrowska, 2017). The Older American Act, instituted 50 years ago by the U.S. Department of Health and Human Services, provides meals to seniors through the Congregate Nutrition Program and the Home Delivered Nutrition Program and also partially funds services such as Meals on Wheels (Meals on Wheels America, 2019). Another senior-focused supplemental program provided by the USDA is the Commodity Supplemental Food Program (CSFP), which distributes monthly food packages to low-income elderly (USDA, 2019). Although these programs help meet the needs of many food-insecure seniors, they are unable to keep up with the growing demand for food assistance (Rinehart et al., 2016).

In addition to the public food assistance programs noted above, there are private food assistance programs such as food pantries, food banks, and soup kitchens. Both public and private assis-

tance programs have barriers to seniors' participation. A study by Dean, Sharkey, and Johnson (2011) found that seniors display low levels of participation in nutrition assistance programs because they do not know what public and private programs are available to them in their communities. Further difficulty in accessing food assistance programs can be attributed to social isolation among older populations (Cotterell et al., 2018) and other consequences of limited social capital, such as increased nutritional risks and lack of emotional support (Dean et al., 2011; Zepeda, 2017). Other studies attributed the lack of senior participation to a variety of factors including misconceptions regarding the available programs, eligibility restrictions, and technological difficulties in the application process (National Council on Aging, 2019; Rinehart et al., 2016). Beyond barriers of awareness and access, overcoming food insecurity for seniors also involves seniors acknowledging their food insecurity and overcoming the negative social stigma associated with assistance programs. Societal shame and feelings of embarrassment have been found to be motivating factors for seniors in hiding hunger and avoiding assistance (Wolfe et al., 1996; Zepeda, 2017). These barriers have resulted in SNAP-eligible seniors demonstrating the lowest participation rates of any demographic group (Gualtieri & Donley, 2016), with only two out of every five qualifying seniors participating in SNAP benefits (National Council on Aging, 2019; Rinehart et al., 2016). At present, 83% of low-income (incomes below 185% of the poverty threshold), food-insecure seniors are not receiving food assistance to enable them to meet their nutritional needs (Martin et al., 2003; Meals on Wheels America, 2019).

Community Gardening as a Potential Strategy to Address Barriers

This project aims to help remedy food insecurity through the Orono Community Garden, an initiative where community members collaborate to serve the senior low-income population. Community gardens, such as the OCG, are shared spaces where organized and often collaborative agricultural projects produce and provide access to fresh fruits and vegetables (D'Abundo & Carden, 2008; Drake & Lawson, 2015; Gerster-Bentaya, 2013). Additionally, these garden projects have been found to promote the formation of social ties, build community capacity, create attractive public spaces, and improve public health and wellbeing by producing healthy food (Obach & Tobin, 2014; Teig et al., 2009; Twiss et al., 2003). Historically, community garden projects have been created as a way to supplement food supplies and maximize benefits to individuals, communities, and the environment (Carney et al., 2012; Kurtz, 2001; Okvat & Zautra, 2011; Pudup, 2008). Community gardens can be seen as a form of civic agriculture, establishing centers of "public pedagogy" (Walter, 2013), addressing issues of food injustice and social disparity (Dwiartama & Piatti, 2016; Irazábal & Punja, 2009), increasing engagement in local systems, and creating civic pride (Obach & Tobin, 2014). When the focus of the garden becomes one where the food is grown to educate gardeners and donate the food produced to specific groups, gardens become sources of social capital and exchange (Drake & Lawson, 2015) and can function to create "collective wellness" in their local populations (D'Abundo & Carden, 2008). Consequently, community gardens have been a critical tool in creating food access and contributing to the food security of vulnerable populations (Carney et al., 2012; Twiss et al., 2003).

Maine in Context: Orono and the Orono Community Garden Project

With the highest percentage of seniors in the U.S., Maine is a particularly relevant location for studying senior food insecurity (U.S. Census Bureau, 2010). Much of the state's rural population struggles with poverty, and almost a third of Maine seniors are identified as low-income (Schaefer & Mattingly, 2016). Maine has the highest rate of food insecurity in New England (Good Shepherd Food Bank & Preble Street, 2017), but it also has a vibrant local food movement, including community gardens, which could be utilized to mitigate food insecurity (Burnett & Matlins, 2006; Feulner, 2015; Good Shepherd Food Bank & Preble Street, 2017; Pingree, 2012). This backdrop provides the context in which the Orono Community Garden was created and has thrived.

Stemming from a public educational program through the University of Maine Cooperative Extension, the OCG was started in the village of Orono in 2004. Since it began, the OCG and its volunteers have grown and delivered fresh produce to residents of two adjacent, low-income senior housing complexes in Orono in partnership with local stakeholders, including the Orono Parks and Recreation Department and the University of Maine Cooperative Extension horticulture program. Local farmers associated with the Orono Farmers Market also contribute unsold produce to the garden's deliveries. The OCG is categorized as a giving garden because all its produce is given away to these seniors, who often visit the garden but play no measurable role in growing or harvesting the produce. Each year, 20 to 30 volunteers work in the OCG, including the garden director, university students, master gardeners in training, and town members. In a typical week during the growing season, the OCG requires four to eight volunteers contributing approximately 22 hours of total work. The OCG director is responsible for approximately eight hours per week. Material costs for the garden (seeds, compost, tools, etc.) are estimated to be US$1,000 annually. Seniors living in the nearby housing units are visited by volunteers who go door to door asking if they are interested in receiving produce grown in the garden. On average, about 50 out of a total of 70 households participate each year to receive a weekly delivery of freshly harvested vegetables.

The OCG has three main goals: (1) teach volunteers intensive organic gardening methods, (2) help alleviate senior food insecurity, and (3) reduce senior isolation through the interactions between the volunteers and recipients when the produce is delivered. As the OCG provides high-quality produce to these low-income seniors and creates opportunities for social interaction between participating seniors and the volunteer community, there are many potential benefits for its local households that address nutritional and social needs by this population (Damon, 2017; Mullis, 2016).

The OCG volunteers are taught intensive organic gardening methods, producing 20 different annual vegetable varieties on 52 raised beds ranging in size from 4x4 ft. (1.2x1.2 m) to 4x30 ft. (1.2x9.1 m), providing approximately 2,300 ft.^{2} (214 m^2) of production area. Most beds are double cropped in the season when possible. In addition, a wide range of annual vegetables are also produced on a 5,000 ft.^{2} (465 m^2) plot at the University of Maine Rogers Farm, located several miles from the OCG. Further supplementing the produce grown in the OCG are extra vegetables grown for research projects at the University of Maine, as well as gleaning from the Orono Farmers Market, where farmers regularly contribute 10 to 15 lbs. (4.5 to 6.8 kg) of leafy greens and other perishable vegetables at the end of their market day. Each week, vegetables are harvested, cleaned, and bagged for delivery. For the last 15 years, from late June through late September, the OCG project staff and volunteers have delivered an average of 7 lbs. (2.7 to 3.6 kg) of produce each week to approximately 50 senior recipients (Haggerty et al., 2016).

As we are seeking ways to understand where the OCG program fits into a larger strategy of addressing senior food insecurity in rural areas like Maine, we discovered that few studies have been conducted to date that examine the impact of community giving garden programs on food insecurity (Carney et al., 2012; Committee on National Statistics, Division of Behavioral and Social Sciences and Education, Food and Nutrition Board, Nation Research Council, & Institute of Medicine, 2013; Macias, 2008). Likewise, we found limited research focusing on senior perceptions of food insecurity relief programs and their associated social stigmas, issues that emerged from our interviews with the recipients of the food (Damon, 2017; Mullis, 2016; Okvat & Zautra, 2011; Wolfe et al., 1996), as well as a paucity of information on the impact of local activities that attempt to alleviate food insecurity (Dean et al., 2011). Thus, this assessment of the OCG program team takes up these questions and looks to address these knowledge gaps regarding seniors' barriers to participation in food assistance programs and the community giving garden model. Specifically, we examine the potential of community giving gardens to increase access to healthy food, seniors' perceptions of their own food insecurity, and the stigmas associated with food assistance programs.

Methods

The study used a mixed-methods approach that included a survey and two series of interviews. All interviewees were residents of two low-income housing projects in Orono, Maine. A four-question, open-ended survey with a self-addressed stamped envelope for its return was included in the final delivery bags of the fall 2015 harvest to the 55 OCG food recipients, and 18 surveys were returned. The survey questions focused on the length of participation in the OCG, the impact of the garden vegetables on the participants' diet, the perceived impact on the participant of ending the giving garden, and the participants' perception of their relationships with the garden volunteers (Mullis, 2016).

Two sets of semistructured interviews lasting 30 to 60 minutes were conducted during the harvest seasons of 2015 and 2017.[1] Two interviewers, neither of whom was affiliated with the OCG, were trained and conducted the interviews. One interviewer conducted all of the 2015 interviews and a second interviewer conducted the 2017 interviews. Both sets of interviewees were self-selected. On the last day of the fall 2015 garden deliveries, an individual researcher and the garden manager asked seniors, at their home, if they were willing to participate in interviews. Twenty-five seniors provided contact information to set up an interview, and ultimately 12 participants were interviewed. One interview was omitted due to inconsistencies in the responses. The open-ended questions focused on the seniors' motivation for being involved with the community garden; personal experience and perceptions of food access and food insecurity; food habits such as cooking ability, seasonal food storage, and reliance on food sales; and current participation in food assistance programs. Several additional questions examined senior isolation and the participants' perceptions of the garden's role in creating social capital (Mullis, 2016).

The second set of interviews was conducted during fall 2017 with residents who had either never participated in the garden or chose not to continue their participation in the OCG that year. Initial contact with potential interviewees was facilitated through a monthly newsletter generated by the management organization of the senior complexes. This contact was followed up by a researcher knocking on residents' doors and asking to schedule interviews. Ten interviews were conducted; four were residents who had never participated in the OCG, while the remaining six had previously participated. The open-ended questions were the same as those asked in the first set of interviews, along with questions focusing on why these interviewees chose not to participate in the OCG that season.

All interviews were conducted and recorded in the seniors' homes and then transcribed. Twenty-two of the 70 households in the two senior housing complexes participated in the interviews, although one response was omitted as mentioned above. Following transcription, interviews were analyzed and manually coded using an iterative process where themes and codes emerged through this process reflecting the research questions and relevant literature (Mullis, 2016; Saldaña, 2013).

Results

Based on survey data and personal interviews, this case study analyzed the decisions of 21 seniors to participate in the OCG program and their perceptions of the experience. Our work examined what the OCG program can provide to food-insecure seniors and how it played a role in the food-security status of the participants. We also explored the factors that influenced participation in food assistance programs and seniors' self-perceived level of food security. The knowledge gained from this study will better inform how we build socially just and resilient food systems and invest in ways to provide adequate food access to vulnerable groups.

The Orono Community Garden Program

In our interviews with seniors participating in the OCG program, we found that many reported being food secure and relying on a network of food assistance programs, including the OCG program. Of the 11 interviews, 55% of senior households

[1] Interview questions are available from the corresponding author upon request.

shared that they always looked forward to the fresh food from the OCG (Table 1). A typical quote describing this feeling included, "I like everything about it [the deliveries]. It's just marvelous, I run to the house and dust 'em off, wash 'em off, put them in bags if I'm going to save them" (Interview 6, Fall 2015), or, "because it's kind of like a surprise" (Interview 5, Fall 2015), and more often, "we're just grateful to get it. We love the fresh vegetables" (Interview 6, Fall 2015). Eighty-two percent of seniors participating in the OCG confirmed that food deliveries from the garden substituted or replaced food they would normally need to buy. One senior alluded to receiving the additional food from the garden enabling them to be able to have vegetables that, "most of the time, I just can't afford is certainly a treat" (Survey "Selected Evals," page 9 of 9). Nine out of the eleven participating seniors indicated in their interviews that the supplemental fresh produce contributed a benefit to their normal diets and gave them additional options in budgeting for food and other expenses. Sixty-three percent of seniors reported consuming more vegetables than they would normally while the garden was in season because purchasing them in the store was too expensive (Mullis, 2016). One participant noted, "I don't feel like I could afford it [fresh vegetables]" (Interview 10, Fall 2015), and "I just think it [the garden] allows me to buy some of the extra things that I normally couldn't" (Interview 10, Fall 2015). Responses such as these were typical in our interviews and confirmed the crucial ways the OCG program augmented the food options of many of the seniors it serves and enabled them to better use their fixed income to meet their needs.

Table 1. Senior Participants Perceptions of Food Insecurity and Impact of the OCG Program (*n*=11)

Interviewees' reason for valuing the OCG program	Number [a]
Self-report as currently food secure	11
Cited past food insecurity	6
Reported looking forward to fresh food	6
Reported pressure to not waste food	4
Cited preservation of garden food	7
Reported thriftiness with food money	5
Reported that garden deliveries added to amount of food they were able to access	3
Reported that garden deliveries substituted for food they would typically acquire	8

[a] Interviewees could provide more than one reason.

Table 2. Senior Nonparticipants' Reasons for Terminating Deliveries (*n*=10)

Reason	Number [a]
Self-report as currently food secure	10
Cited past food insecurity	4
Reported pressure to not waste food	2
Reported disliking type of food received	2
Reported disliking quantity of food received	3
Reported having trouble eating certain food	2
Reported that food from the garden was dirty	3
Reported ease with getting to grocery store	6

[a] Interviewees could provide more than one reason.

Even with free, nutritious produce being delivered directly to their homes, some seniors chose not to participate, and our study sought to understand why. In our second set of interviews, 10 seniors were asked to explain their decisions for opting out of the program (Table 2). Health limitations drove nine of the 10 seniors' choice to opt out, citing medications that restricted their diet or physical constraints that made preparing and cooking the produce too difficult (Interview 3, 4, 5, 6, Fall 2015; Interview 12, 13, 15, 18, Fall 2017). Others who opted out of the OCG program explained that they "couldn't take care of what we had, and you don't want to waste it, because there's too many people out there that need it" (Interview 18, Fall 2017). Likewise, former participants acknowledged how much they had enjoyed the fresh food deliveries, but worried that others were

in greater need, and they did not want to waste food resources. Six of the ten nonparticipating seniors did report having enjoyed their deliveries from the OCG in the past, but said that they felt their food access was more secure compared to others. One household explained that their main reason for stopping was because they "knew the gardens weren't that big. They couldn't cover that many people, so somebody else could use it more than we could" (Interview 16, Fall 2017). Although this household chose not to participate, they did admit to missing the food deliveries and visits from volunteers, and shared that "we know you're around during the week because we see you coming and going. I think it's wonderful" (Interview 16, Fall 2017). All 10 seniors who had opted out of participating in garden deliveries, for one reason or another, were also currently participating in at least one other food assistance program and all indicated knowing of other sources of food assistance available to them. Despite appreciation for the OCG program, the seniors' choice not to participate was motivated by one of several factors: health constraints, the desire not to waste food, or the belief that someone else could better utilize the free food deliveries. Both interview sets verified the ways the OCG program reduces the stress of food budgeting, although the level of stress varied from person to person. Food deliveries from the OCG program supplemented seniors' diets with healthier and otherwise unaffordable options. These insights reinforce the many benefits of a giving garden, yet still leave us to question the potential for community giving garden projects to significantly increase food access and improve food security.

Constellation of Programs

In Maine, almost 57% of adults age 65 and over lack the financial resources required to cover their basic needs, including their food (Dooley, 2017). A network of supplemental food programs has been developed to improve food security. For example, in Orono, support for seniors can be found through a variety of home-delivery food program services including those run by local volunteer organizations, such as the OCG, the Parker Dining Room, and Eastern Area Agency on Aging-Meals on Wheels (*Bangor Daily News* Staff, 2011; Eastern Agency Area on Aging, 2018). Public food assistance includes programs such as SNAP benefits and the Maine Senior FarmShare Program. FarmShare is a federally funded food assistance program that can provide US$50 worth of fresh, local produce to eligible seniors who apply each year, but this program operates on a first-come, first-served basis and only during the growing season (Maine Department of Agriculture, Conservation and Forestry, n.d.). Parker Dining Room is a private project operating with the help of one of the local low-income housing facilities. Funded by the Eastern Area Agency on Aging and staffed by volunteers, it provides both a site where local seniors can gather to share low-cost meals and also arranges home delivery for immobile residents. Food-insecure seniors may also utilize food pantries and other locally operated, private food relief networks throughout the state (Good Shepherd Food Bank & Preble Street, 2017; Graham, 2014). This constellation of food assistance programs decreases the food insecurity of seniors by increasing their access to safe and nutritionally adequate foods.

We found the majority of the interviewed seniors utilized a combination of public and private assistance programs. While senior households often use both types of assistance, the interrelationship of private and public food assistance programs is understudied, and the nature of senior participation is influenced by numerous factors. In estimating senior participation rates, studies done by Daponte (2000) and Martin et al. (2003) found that elderly, low-income households were more likely to utilize only public assistance (15%–34% of seniors), compared to using only private assistance (21%–26% of seniors), or combining both public and private forms of food assistance (8%–9% of seniors). These studies also found that 36% to 55% of seniors were not participating in any form of food assistance (Daponte, 2000; Martin et al., 2003). Our results found 29% of seniors interviewed to be using only public sources of food assistance, 19% of seniors using only private forms of food assistance, and 52% of seniors using both public and private food assistance programs (Table 3). No senior in our study chose to not use food assistance. Participation in only public or only private forms of food assistance was consistent

Table 3. Overall Participation Rates in Each Type of Program (*n*=21)

Number of Assistance Programs Participating In	Only Public	Only Private	Both Public and Private	Total in Each Program
0 programs	0%	0%	0%	0%
1 program	14%	19%	0%	33%
2 programs	14%	0%	29%	43%
3 programs	0%	0%	19%	19%
4+ programs	0%	0%	5%	5%
Total % that participated	29%	19%	52%	100%

with the estimated rates of typical senior households in the U.S. (Daponte, 2000; Martin et al., 2003); however, the participation rate of seniors who used both public and private food assistance was much higher than the observed national participation rates (Table 3). Our interviews also concluded that all 21 seniors were utilizing at least one food assistance program, with a majority participating in multiple food assistance programs.

The programs with the highest levels of participation included the OCG, the Maine Senior FarmShare Program, and SNAP. Eighty-one percent of the seniors participated in public assistance programs, combining or choosing either SNAP "food stamps" or the Maine Senior FarmShare. This outcome is also consistent with studies indicating that those in need predominantly rely on public rather than private sources of food aid (Wu & Eamon, 2007). Our observed participation rate in SNAP benefits (52%) was only slightly higher than the most recently reported national average rate (48%) of SNAP benefit participation rate by seniors (USDA ERS, 2019). No seniors, however, reported using public assistance through the Meals on Wheels home-delivery service. Multiple seniors also expressed their distaste for the Meals on Wheels service; one even cited that "it doesn't work," and that she'd rather go hungry than pay for "a peanut butter sandwich on stale bread and a can of soup" (Interview 12, Fall 2017). None of the seniors interviewed in this study utilized local food banks or food pantries. Interviewees shared that they did not feel the food was adequate. Seniors noted that the local food banks did not meet their expectations; however, this does not necessarily reflect on food banks in other areas. Typical responses to questions about past food bank or food pantry use included descriptions such as, "the food pantry . . . they had food that wasn't the healthiest, like bread and starchy stuff; so, I don't know that I ate as healthy as I could've" (Interview 10, Fall 2015), discomfort with the facility as in "the inside just isn't, doesn't look like it's clean enough to be a food bank" (Interview 21, Fall 2017), or that, even in desperate times, they felt too embarrassed to use the food pantries (Interview 12, Fall 2017). In contrast, seniors were much more positive regarding their experiences with both the OCG and Parker Dining Room, the private food assistance programs mentioned previously, both of which provide consistent food access and reliable support for those who choose to participate. Positive experiences regarding the OCG program included statements such as, "but I like the Orono garden, you know, to get the fresh vegetables … and stuff, it's really good. I look forward to that every year" (Interview 2, Fall 2015). They also shared that they enjoyed the visits from volunteers just as much as they enjoyed the free food: "Well it's a little bit of both. The volunteers bring the food … all that makes a big difference. I enjoy the food, but I like the talk, so it's something to look forward to" (Interview 14, Fall 2017). These local organizations were often described with gratitude and compliments, recognizing the nutritious food and its addition to their diet.

Food Insecurity

In examining the food insecurity of seniors, it is important to not only understand the nutritional

needs of seniors' diets and how seniors are accessing food, but also their perception of their own relative food security status (Gualtieri & Donley, 2016; Quandt et al., 2001). All seniors indicated that they were currently food secure when directly asked during their interviews. However, the reality of their food-security status was frequently contradicted with other comments made during the interviews, revealing anxieties about food access and budgets, thriftiness when food shopping, disrupted eating patterns, and sacrifices required for availability of adequate food. One of the seniors shared that they did not feel insecure as long as they had "the basics. You know, I can usually whip up something or get by. … I don't make a meal" (Interview 14, Fall 2017). Others reported that they navigate shopping only on senior discount days or only purchasing food that is on sale (Interview 1, 6, Fall 2015; Interview 12, 17, 21, Fall 2017), that they only buy fresh produce in the summer months when it is less expensive (Interview 12, 17, Fall 2017), that they "save a lot [of fresh produce from the OCG] for winter" (Interview 7, 12, Fall 2017), and that the amount of food they have "runs low" each month before their next round of SNAP benefits come in (Interview 2, 10, Fall 2015; Interview 14, 15, 19, Fall 2017) Some seniors reported their reliance on food stamps: "by the end of the month I'm just right so that I'm low, low, and then my check comes … by the end of that month going into the next, I'm ready for the food stamps. I just never go hungry," even going on to confirm that it can sometimes get to the point where the interviewee "really needed those stamps" (Interview 15, Fall 2017). One interviewee indicated that when they run low or out of food, they "drink a lot of water" to cope (Interview 19, Fall 2017). Stresses about food and thrifty food habits were characteristics present in many interviews and were used as indicators to identify the level of food security of these seniors.

The USDA Economic Research Service defines food security in four categories: high food security (HFS), marginal (MFS), low (LFS), and very low (VLFS) (USDA ERS, 2019). High food security is defined as having a nutritious diet and consistent, safe food access. Marginal food security is defined as households that report having problems at times, or anxiety about, accessing adequate food to meet their nutritional needs (USDA ERS, 2019). The 4.3% of American households that experience low food security are characterized by being, at times, unable to acquire a variety of adequate food for household members due to insufficient money and other resources (Coleman-Jensen et al., 2019). Those defined as having very low food security experience disrupted eating patterns and reduced food intakes, at least sometimes during the year, because they can not afford sufficient food (Coleman-Jensen et al., 2019). An analysis of the 21 interviews for language and themes related to the interviewees' food access experience during the prior year were used to estimate their level of food security, as defined by the USDA. The interviews were coded to determine seniors' ability to access food, typical eating patterns, personal definition of food insecurity, perception and coping strategies with food shortage, experiences of past food insecurity, and use of food assistance. Individuals' codes were then compared to USDA food security category definitions in order to estimate their food security status at the time of the interview. This assessment yielded contrasting results to their level of self-reported food security. More than half the seniors interviewed noted anxiety about food access and almost a third of all seniors were found to fit the definition of having very low food security (Table 4).

Table 4. Estimated Level of Food Security of Seniors Interviewed (*n*=21)

Food Security	Percent Reporting	Participants in OCG Program	Nonparticipants in OCG Program
High Food Security	38%	4	4
Marginal Food Security	14%	2	1
Low Food Security	19%	2	2
Very Low Food Security	29%	3	3

Almost all these seniors struggled to express their inadequate access to food in terms of insecurity and, when prompted by the interviewer, explained that they were currently food secure. Feeling like they have enough food to get by, often many seniors do not accurately define their level of food insecurity (Graham, 2014; Quandt et al., 2001). Seniors may misreport their food insecurity because they felt they had inherited a learned "resilience" and knew how to shop intelligently, make do, and stretch their resources, despite having constraints on income, personal mobility, or access to transportation (Frongillo & Warren, 2018; Quandt et al., 2001). When asked if they were struggling with insufficient food resources, all but one of the seniors interviewed responded as feeling confident in their security. However, all 21 seniors interviewed also reported that they relied on various assistance programs or altered their eating patterns due to a lack of resources. After agreeing that they were not worried about their access to food at the moment, some interviewees gave conflicting responses such as, "I [ran] low this month, but food stamps come in tomorrow" (Interview 13, Fall 2017), or statements such as, "I've got plenty of food right now. Mostly canned stuff, but I wait'll it's on sale and then I kinda get, you know, extra" (Interview 1, Fall 2015). Another senior shared that they never had difficulty accessing fresh food, but later reported that, "we get through [say] June to September. That's fine, but after that no" (Interview 7, Fall 2015). Being food secure includes not feeling anxious about food sufficiency or lack of food and not reducing one's food intake or the quality and variety of diet. Seniors may feel like they have enough and may have "never experienced a time where they didn't have enough food to eat" (Interview 15, Fall 2017), but still experience food insecurity, as indicated by interview statements such as, "it's always nice to have a little extra [food]," (Interview 15, Fall 2015) or agreeing that each month it can get hard toward the end of the month. In both sets of interviews, seniors were vocal about their food thriftiness or shared stories of past challenges to put food on the table, but declined to identify themselves as having worries about the amount of food they had or ever having experienced food insecurity. Those interviewees who had experienced past food insecurity shared that those episodes felt "embarrassing" (Interview 8, Fall 2015), and unpleasant enough that they "didn't want to burden" (Interview 10, Fall 2015) or ask for help from others, even family members. Consistent with these findings, admitting insecurity is challenging, and the real number of food-insecure seniors is likely higher than what is self-reported.

Discussion

These results demonstrate the need for the OCG program. National statistics and interviewees' comments support the need for such a program. The free weekly deliveries of fresh food supplemented and supported the diets of the seniors interviewed. The garden was consistently recognized as a convenient source of food; deliveries to their doorstep relieved significant food access issues, such as transportation or physical limitations (Martin et al, 2003; Rinehart et al, 2016). The free deliveries from the OCG were also noted to reduce anxiety about food budgets or food sufficiency. When asked if the amount of money that was spent on groceries changed at all when receiving food from the garden, interviewees responded with statements such as "It's, money, I don't buy the vegetables and that sorta thing" (Interview 2, Fall 2015), or, "Oh yes. I love fresh vegetables, and sometimes my neighbors feel like they got too much and will give me some of theirs. So, it really affects what I eat. … I just think it allows me to buy some of the extra things that I normally couldn't" (Interview 10, Fall 2015), and "I spend a lot less. . . . 'Cause you get the food from the garden, and you stretch what you get. I mean, lots of times I can take what I have and maybe two or three meals go in the freezer. . . . Big saving when we can get it from the garden" (Interview 7, Fall 2015). Our interviews found that the garden provided additional access to nutritious food for these seniors, many of whom cobble together different avenues of food assistance to meet their needs.

All of these seniors were utilizing at least one food assistance program, and a majority of the seniors reported participating in multiple local food assistance programs. Both the high overall partici-

pation rate and high combined participation rate, in public and private assistance programs, were inconsistent with the observed national rates of senior participation in food assistance programs. Unlike the national findings, all of the Orono respondents were participating in at least one food assistance program. This could be attributed to the multiplicity of programs available in the community and the support provided to seniors to access these existing programs. The OCG actively recruits seniors into its delivery routines and has effectively maximized the number of recipients to whom the garden can provide food. This approach eliminates any eligibility barriers that are sometimes presented with other food assistance programs, such as qualification standards or complicated enrollment paperwork, and increases its accessibility. The OCG program also functioned as a food delivery service and not a pick-up program, providing increased access to seniors who may have been challenged by transportation or mobility barriers. These low-income senior housing complexes also had a champion resident service coordinator who facilitated their participation in public and private programs and ensured that households were provided with opportunities to access food. A majority of interviewees were either current or past participants in the OCG, influencing the likelihood that participants would be willing to engage in some form of supplemental food assistance.

Our results indicated that the interviewed seniors are using a combination of public and private programs at a much higher rate than observed in national trends, with 52% of the seniors interviewed using both types of assistance programs and all seniors participating in some type of food assistance. The majority of seniors who utilized SNAP benefits also participated in other existing programs including food aid from private sources such as the OCG and Parker Dining Room or additional deliveries from the federally funded Maine FarmShare program.

With a high percentage of eligible seniors declining to engage in food security programs, we sought to identify the potential barriers. Low senior participation in public food assistance programs is often attributed to difficulties with the application process and stigma associated with SNAP as a "welfare" program (Frongillo & Horan, 2004; Meals on Wheels America, 2017; Rinehart et al., 2016; Wolfe et al., 1996). In the most recent studies regarding senior perception of SNAP, Gabor, Williams, Bellamy, Hardison, and Dagata (2002) found that stigma was the most common reason for not applying for SNAP benefits. The existence of stigma and "negative self-characterizations" from participation in welfare is a well-documented issue (Moffitt, 1983), and may be an underlying element to explain how the elderly view their food security. Many seniors find it very difficult to ask for help after having supported themselves for so many years. Having been enculturated with values generated by the Great Depression and a World War, seniors may reflect with pride on their abilities to withstand hardship and effectively make compromises to survive (Quandt et al., 2001). In contrast to the government's definition of food insecurity, seniors' perception is influenced by their past and their instilled values of self-sufficiency, as demonstrated in these interviews. These perceptions hinder many seniors' ability to acknowledge their food insecurity and recognize their own need for assistance. Consistent with these findings, admitting insecurity is challenging, and the real number of food-insecure seniors is likely higher than what is self-reported.

Similar sentiments can be further associated with private food assistance programs. Utilizing food pantries or borrowing money for food can seem socially unacceptable avenues for food procurement, and often lead to shame and hurt pride (Wolfe et al., 2003). In our interviews, some seniors shared negative attitudes toward food pantries, citing them to be dirty (Interview 21, Fall 2017) or having inadequate and unhealthy food options (Interview 10, Fall 2015). Negative associations were shared by interviewed seniors about many of the available programs, yet participation in both types of public and private programs was prevalent. Furthermore, no interviewed senior reported participating in local food banks or pantries, reinforcing the literature that suggests that many seniors have negative perceptions about using private food assistance programs. Although participation rates for public programs were higher in our study, it is unclear whether the seniors actually preferred

public forms of assistance over private programs. What these households consider to be viable, socially acceptable resources can be more complex than public versus private assistance, as it was common for many of these households to attribute negative associations or feelings of shame to participating in any source of assistance.

Seniors participating in the OCG did not report feeling uncomfortable or feeling judged when receiving food from the garden, a stigma that is often attributable to other forms of food assistance (Frongillo & Horan, 2004; Martin et al., 2003; Rinehart et al., 2016; Wolfe et al., 1996). Justifications for nonparticipation in the OCG program were based on health limitations, inability to consume leafy greens due to medications, concerns about wasting garden vegetables, or issues with the physical capacity to cook. For example, an interviewee who had stopped participating in garden deliveries noted, "well, the food that you gave me, I couldn't eat it all, and it would go bad; I'd have to throw it away. So I decided to stop. … I liked it. … Yours is good, fresh stuff when I get it. But there's just too much" (Interview 21, Fall 2017). Participants never cited feelings of shame in receiving the food donations from the OCG, instead noting how much they enjoyed the "lovely" deliveries, how much they looked forward to the drop-offs (Interview 1, 2, 3, 4, 8, Fall 2015; Interview 13, 14, 15, 18, Fall 2017), and "what a nice service it [the OCG] is" (Interview 18, Fall 2017). The food delivery approach was noted to be destigmatizing and increased the ability of many seniors to participate. When asked if the deliveries were valuable, one senior responded, "I mean, I could walk down there—I could, but I cannot. I've got a sore body. Can't wait to get rid of it. I don't know if I ever will. Oh, well" (Interview 15, Fall 2017). Multiple interviewees reported talking to other residents in the housing development about how much they all enjoyed the garden (Interview 2, 5, 6, 10, Fall 2015; Interview 19, Fall 2017). Compared to feelings of discomfort or shame they might have felt in utilizing food pantries, these seniors emphasized their enjoyment of the garden and how happy they were to receive deliveries. The lack of stress or negative feelings related to the OCG program points out that seniors may feel differently about utilizing a community giving garden program instead of other forms of assistance programs. Other private food assistance programs were met with dislike of the food quality or disapproval of the retail conditions. Unlike the issues raised in Feeding America's national review of public food assistance, seniors did not mention problems associated with public food assistance program eligibility, delays in service, or complicated hoops to jump though (O'Brien et al., 1999). Overcoming these obstacles could be a result of these seniors' resident service coordinator, who facilitated food access opportunities, but the OCG also functions without the barriers to food access that public programs can sometimes present, including trouble with the application, eligibility requirements, and the transportation that is often necessary to go purchase the food. The OCG program presents a strategy that eliminates any barriers to eligibility or paperwork, instead recruiting seniors and offering seniors the option to join the program without requiring an application or qualification status. Despite intermittent hesitancy and dislike for some assistance programs, such as food pantries, the seniors who were interviewed were open about their experiences with initiatives like the OCG and Parker Dining Room, suggesting that these types of programs did not incite negative feelings associated with accepting help.

Although results from our interviews indicated that the OCG program provided low-income seniors with safe access to much-needed food, there was no significant difference in the level of food security between seniors who participated in garden deliveries and those who did not. Both participants and nonparticipants displayed characterization of all four levels of food security and were represented similarly at each level. In fact, no distinct differences were observed between the level of indicated food security and senior participation in any of these programs or the number of programs they were participating in; seniors of all groups had been struggling, at some point, to maintain a level of high food security. While the OCG was not attributed with completely bringing seniors out of marginal, low, or very low levels of food security, it still functioned to provide critical access to food to some of the residents. Studies

show that seniors who receive home-delivered meals over an extended period of time also report having higher overall rates of food security (Dean et al., 2011). Although they may not be able to fully relieve food insecurity for seniors, the much-needed deliveries function as a consistent source of food that plays a role in how seniors define food access.

From this work we can conclude that food access rooted in community involvement and alternative food systems can be one of the tools that influences seniors' food security. The OCG program functions with a constellation of other programs to provide increased food access to many seniors in need of the garden's food deliveries. Despite having access to multiple food assistance programs, many seniors still fail to maintain a high level of food security because they are reliant on the amount of food received from these food sources. Their choices in food access are often restricted by perceived stigmas that deem the source of food assistance as a socially unacceptable way of achieving security.

Due to seniors' difficulty in understanding the definitions of food insecurity, as identified by the federal government, self-reporting is often inaccurate. Many seniors did not define themselves as food insecure, yet acknowledged relying on programs, such as the OCG, to improve their food access. Our work suggests that the OCG meets crucial needs by providing access to fresh, nutritional produce, and that Orono seniors perceived food assistance from the garden to carry far less stigma than other assistance programs.

Why was OCG successful? Facilitated recruitment, home delivery, and the lack of eligibility barriers were key factors that likely contributed to the higher participation rates in food assistance programs demonstrated by seniors in our study, when compared to barriers noted for senior participation rates across the nation (Daponte, 2000; Martin et al., 2003). Pudup (2008) found that community gardens are typically inclusive and will serve all community members, pointing to how similar donation-model gardens can be managed and omit the subjective notions that food assistance often bears. In this sense, especially if given adequate support, community gardens may serve a larger purpose to provide more effective and better utilized solutions to relieve food insecurity. Rather than thinking about community gardens solely as spaces of civic engagement and social centers, our responses indicated that community gardens function as a food assistance program and provide increased food access (Carney et al., 2012; Committee on National Statistics et al., 2013; Furness & Gallaher, 2018).

Conclusions

Social change includes creating equitable access to opportunities and public systems that enable individuals to do more than just survive, and calls attention to issues of food justice. This work centered on the acceptance by low-income seniors of engaging in a community giving garden project. Consistent with the literature, our findings indicate there are many hurdles to achieving food security, and we acknowledge there are a variety of factors contributing to participation in different assistance programs and the hindering role that stigma plays in this particular demographic (as also demonstrated in the literature). We found that the OCG did not have barriers that would inhibit participation, unlike other food assistance programs mentioned in the literature, and senior households chose not to participate due to personal choice and perhaps local management of other programs. The benefits of a private food-donation program, such as the OCG, can be crucial to those in need. This study also found that these seniors participate in food assistance programs and typically in a combination of private and public food assistance programs at a much higher rate than observed nationally, a result that requires further inquiry to better understand. A key finding in this study is the lack of stigma associated with food assistance in the form of a community giving garden program. We suggest that public assistance programs must continue to provide consistent support to seniors alongside private options, such as community gardens, to maintain a commitment to equitable food access and as a means to help seniors alleviate food stress.

Creating food equity involves a comprehensive approach toward our complex food systems. Our work does not look to solve long-term problems of

systemic disparity in food access, but instead supports the prospects of community gardens as one potential solution to a short-term problem to help alleviate pressure. Linking sustainable food production and the development of fair and accessible programs will support food sovereignty for all and help reduce the many inequities within our food systems (Vitiello et al., 2015). This community giving garden suggests an avenue that increases food security and simultaneously diminishes stigmatized views associated with food assistance programs.

We found these seniors to commonly misrepresent their level of food security and rely on a complex system of assistance, suggesting the true extent of their hardship to be worse and unclear. Like many other food assistance programs, the constellation of programs seen in Orono is uncoordinated in its efforts to address senior food security. These programs are also vulnerable, often run by volunteers, supported with limited resources, and as such, are at risk of termination. Although lacking a systematic approach, these programs function as a safety net to support the nutrition of many seniors in Orono. The loss of a single program could place some secure seniors in positions of instability or increased food insecurity. These results can be viewed as a reflection of the failure of structural opportunities within a community to facilitate access to food (Dean et al., 2011). Community giving gardens should be favored as an emerging solution to this problem in providing destigmatized food access and building local food economies. We must achieve a more comprehensive understanding of food access in our nation, information that will equip us with the knowledge of how to navigate building food equity and resilient, inclusive food systems.

Encouraging further examination of the perception of food access and food planning behaviors may have broader impacts in addressing systemic change. Studies conducted by Daponte (2000) and Wu and Eamon (2007) found a negative correlation between age and the likelihood to use food assistance, but we have yet to understand the many factors that prevent seniors from using available food resources. In designing effective programs to combat food insecurity, seniors' perception of food assistance should be strongly considered. Future research should explore the widespread scale of food-access issues for rural low-income populations, determine how often and to what extent community giving gardens are playing a role in rural food systems planning, and explore the potential role of community garden programs in creating resilient community resources. Prospective longitudinal case studies should be built to better understand how older Americans hide their hunger and the ways we can create equitable access to food.

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Re-energizing Japan's *teikei* movement: Understanding intergenerational transitions of diverse economies

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Abstract

In the 1960s-70s, Japan's *teikei* movement, also referred to as Japanese community supported agriculture (CSA), emerged as a response to a period marred with multiple food scandals and environmental injustices and resulted in direct partnerships between consumers and organic farmers. Although this movement peaked in the 1990s just as the concept of alternative food networks (AFNs) gained popularity in western countries, little is known about what has happened to teikei today. This paper analyzes how teikei exemplifies diverse economies and explores how the possibilities of noncapitalist economic practice currently exist compared to the founding movement principles. Through case studies of two teikei groups in the Kansai region of Japan that transitioned their leadership to younger generations, I assess how changes made by current generations allow teikei to adapt to challenges that have long plagued the movement, such as the decline of volunteer labor provided by housewives. Drawing on a diverse economies approach, I argue that, despite current members' detachment from strong activist identities, they sustain their organizations through part-time work, community building, and institutionalizing volunteer labor. The successes and struggles of current teikei groups provide insight into how AFNs seeking to build alternative economies can overcome difficulties that emerge from actualizing diverse economies.

Keywords

Diverse Economy, *Teikei,* Alternative Food Network, Organic Agriculture, Everyday Activism, Direct-to-Consumer, Community Supported Agriculture, CSA

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Introduction

The concept of alternative food networks (AFN) emerged in the 1990s largely in opposition to global, industrialized conventional food supply chains (Renting et al., 2003). However, Japan's *sansho-teikei* (*teikei*)[1] movement holds a slightly different history: it was formed in the 1960s-70s in response to consumers concerned with food scares and environmental harm resulting from the heavy use of agrichemicals and producers who opposed the industrialization of agriculture. In addition, several prominent doctors also began advocating the importance of diets without agrichemicals based on their research which drew connections between illness and diet (Honjoh, 2004). The teikei movement, often referred to as Japan's alternative food movement (Kondoh, 2015) or the Japanese version of CSA (Hatano, 2008), is defined as the co-partnership between consumers and producers operating their own direct distribution system. According to the founders of the Japan Organic Agriculture Association[2] (JOAA), the teikei movement served as the vehicle for social transformation where both producers and consumers actively engaged in building an alternative food system centered on organic agriculture. In addition, teikei prioritizes mutual understanding and developing trust between producers and consumers, exemplifying the major tenets of AFNs such as economic viability for producers, ecologically sound growing practices, and social equity (Feenstra, 1997; JOAA, 2004; Kondoh, 2015). However, as AFNs gained popularity in the 1990s, the teikei movement witnessed a decline due to changing social structures such as the aging of leaders and farmers, loss of volunteer labor from housewives as more women entered the workforce, and expansion of commercialized organic produce sold in mainstream supermarkets.

This paper does not seek to assess the decline of teikei as a movement. Rather, it focuses on how current formations of teikei overcome the struggles that the overall movement has faced. Within AFN literature, there have been criticisms regarding the nature of AFN as an over-glorification of small-scale agriculture and its creation of exclusive niche markets accessible only to affluent consumers (Allen & Sachs, 1991; Guthman, 2008; Tregear, 2011). This has prompted an interrogation on what constitutes the 'alterity' of AFNs, leading scholars to dabble in diverse economies and/or noncapitalist spaces[3] (Gritzas & Kavoulakos, 2016; Rosol, 2020; Wilson, 2013). Diverse economies describe the economic practices that exist outside of what feminist geographers Gibson and Graham refer to as *capitalocentrism* (Gibson-Graham & Dombroski, 2020). C*apitalocentrism* refers to the set of economic practices and relationships in which capitalism is the "dominant, most efficient, modern, innovative, and dynamic form[] of economic activity that ha[s] hitherto existed" (Gibson-Graham & Dombroski, 2020, p. 8). Indeed, AFNs such as teikei were developed to oppose this form of economic practice. teikei, with its several variations in how direct partnerships were formed, exemplify diverse economies where nonmarket transactions, such as workshare and bartering, and nonmarket benefits, such as trust and mutual aid, occur. Inspired by Gibson-Graham's diverse economies scholarship, this paper investigates how teikei groups that have transitioned their leadership beyond the founding generation overcome barriers that arise in implementing diverse economies and/or noncapitalist economic practice. Barriers include issues arising

[1] *Teikei* in Japanese means "partnership." In English publications *sansho-Teikei* and *sanchoku-Teikei* are often confused. *Sanchoku-Teikei* refers to a partnership developed by consumer cooperatives that were looking to source directly from a producer or group of producers and did not specifically adhere to the same principles of *sansho-Teikei* and the organic agriculture movement. For purposes of this paper, I will refer to teikei to represent *sansho-Teikei* as represented by the organic agriculture movement.

[2] JOAA is the national organization of organic farmers in Japan that was formed at the start of the organic agriculture movement. It holds annual conferences and regularly publish magazines and books that promote its activities. It operates as an independent body but serves as an umbrella organization for many *Teike*i groups.

[3] Noncapitalist refers to Gibson-Graham's critique of the universal nature of capitalism which dominates discussion on capital flows only operating in a capitalist manner. They argue that there are other, alternative, or 'noncapitalist' economic practices that exist, although they often remain invisible (Gibson-Graham, 2008). Such economic practices that remain outside the dominant capitalist structure constitute what is known as the diverse economy.

from dependence on volunteer labor, difficulties in supporting viable farmer livelihoods, and declines in political activism.

The paper is organized as follows. First, I contextualize the diverse economies approach with AFN literature and show how the teikei principles align with this approach. Second, I present the two case studies of teikei groups that have undergone intergenerational transitions and have adopted orientations that differ from their founding ones. Third, I show how their transitions have overcome the challenges that emerge from the actualization of noncapitalist economic practices. I demonstrate how participation in the everyday activities of farming, processing orders, and communicating with members have served as opportunities for reflection about contemporary connections to food and agriculture, thereby highlighting teikei as a different diverse economy. Lastly, this paper defines the potentials and limitations that emerge in developing today's alternative food systems, as AFN practitioners often face messy contradictions of imagining alternatives to life under capitalism.

Background

Diverse Economies: A Relative Lens on Alterity

The concept of alternative food networks (AFNs) encapsulates the many initiatives organized by individuals who manage food distribution models outside of the conventional food system. Many such initiatives were originally set up to challenge monolithic worldviews and create alternative reconfigurations of capitalist society (Goodman et al., 2013). However, the literature on AFNs over the last two decades has generated many useful critiques to help understand what has suppressed the capacity for AFNs to transform a food system where "ethical food" moves beyond simply being an "alternative" to conventional food (Blumberg et al., 2020; Bruce & Som Castellano, 2017; Cameron & Wright, 2014; Goodman et al., 2013; Goodman & DuPuis, 2002; Guthman, 2008; Sarmiento, 2017; Wilson, 2012). For example, Watts, Ilbery, and Maye (2005) discuss how some farmers who participate in AFNs must also distribute to conventional food systems to achieve economic viability. Guthman (2008) describes how AFNs reinforce neoliberal subjectivities where individual consumer choice and entrepreneurialism are heralded in the face of deregulation and emphasis on free market and free trade ideology. Thus, in questioning the impact of AFNs and their ability to create social change, the debate on the alterity of AFNs has introduced the exploration of AFNs that encompass noncapitalist economic practices. Examples of AFNs that operate as noncapitalist economic practice includes CSAs that utilize work exchange, cooperatively owned farms, and food collectives, where transactions exist outside of the conventional flows of capital but can come in other forms such as bartering or collective ownership (Koretskaya & Feola, 2020; Rosol, 2020; Sarmiento, 2017; Wilson, 2013).

Not all AFNs inhere noncapitalist economic practices. However, the influential work of feminist economic geographers Katherine Gibson and Julie Graham and their introduction of diverse economies provides a relative lens to understand AFNs as "ongoing experiments in ethical economic relations scattered across a landscape that is already economically heterogenous" (Sarmiento, 2017, p. 486). Because AFNs are often interpreted as a universal term encompassing the wide variety of food systems that operate outside the mainstream (Tregear, 2011), the diverse economies lens provides a more intentional attempt to position AFNs outside conventional, monolithic corporate capitalism. For diverse economy scholars, diversity exists within markets, property, labor practices, social relations, and transactions (Gibson-Graham, 2006; Gritzas & Kavolukaos, 2016; Healy et al., 2020). Therefore, AFNs, which entail noncapitalist economic practices such as teikei, provide a useful understanding of what and how such alternatives exist within this heterogeneous landscape.

However, in analyzing the transformative potential of diverse economies, it is also important to engage with the contradictions and challenges that often emerge between intentions and practices (e.g., 'self-exploitation' of farmers practicing CSA [Galt, 2013] and underlying power imbalances between actors [Suryanata et al., 2020]). For example, Suryanata et al. (2020) point out how new farmers in Hawaii enter with a strong commitment to social values but often face a weak financial outlook due

to their reliance on unpaid labor and grants, and, therefore, end up quitting after a few years. Other critiques of the diverse economies approach point to its abstract nature and the risk of celebrating noncapitalist practices that may also be exploitative (Samers, 2005).

The diverse economies approach assesses how noncapitalist economic practices are both envisioned and put into practice. This generates the opportunity to explore and navigate the various challenges that emerge in building and imagining an alternative while still living under capitalism. Chatterton and Pickerill (2010), in their seminal work on 'everyday activism,' point to the messy space of activism and everyday life that are intertwined in the work to create alternative, postcapitalist imaginaries (Gibson-Graham, 2006). Indeed, according to Wilson (2012) and Gritzas and Kavoulakos (2015), the current rise of noncapitalist economic practices such as CSA can pose as sites for postcapitalist deviations from the mainstream. This collective academic work implies that practitioners, such as the evolving membership in teikei groups, also face the same challenges in "imagining and enacting a new economic politics" (Wilson, 2012, p. 11), in which the ideals of noncapitalist practices must be continuously realigned with the everyday reality of meeting people's needs.

Teikei's Diverse Economies Approach

Beginning in 1971, teikei served as the praxis of Japan's organic movement, where the relationships between producers and consumers were not based on business transactions but rather on friendship, equality, and mutual support. It began with the rejection of organic food being bought and sold as a commodity and aimed to reconfigure social relationships, even if it was viewed as economically inefficient. At the peak of this movement in the 1990s, there were approximately 250-832[4] teikei groups (Hatano, 2008; JOAA, 2004). Consumers, mostly urban housewives, organized themselves into collective groups that reached out to producers who later self-organized into producer groups. There are various formations and styles of teikei groups, such as (1) farmer groups partnering with consumer groups, (2) individual farmers connecting to a group of consumers, and (3) individual farmer to individual consumer relations (Hatano, 1998). More traditional forms of teikei and the case studies featured in this study resemble the first type. The third type, individual farmer to individual consumers, is typically associated with the western CSA model and is utilized by many new entry farmers in Japan today. The premise of teikei rests on being a direct distribution system based on trust generated from personal relationships between producers and consumers (Akitsu & Aminaka, 2010). This partnership is maintained because both parties actively provide resources such as labor and capital and coordinate the infrastructure and logistics needed to carry out distribution. Thus, not only does teikei operate outside of the conventional food system, but by having both consumers and producers share the labor and resources necessary to carry out their alternative distribution system, they are indeed practicing diverse economies.

In 1978, the JOAA established the 10 principles of the teikei movement, which were used as a foundational blueprint to define how the relationships between producers and consumers existed as a form of noncapitalist economic practice. These principles outline how teikei represents a form of a diverse economy. Figure 1 provides the list of 10 principles of teikei as translated by JOAA. The first principle highlights how the relationship between producer and consumer rejects being explicitly transactional and emphasizes how mutuality is necessary. This is further elaborated in the 4th and 5th principles, which discuss the negotiation of prices and distribution of labor. It was commonly agreed upon that it was much more difficult to produce food than it was to consume food, therefore requiring ongoing mutual understanding. Some teikei groups put this into practice via a variety of ways such as fixed price setting, full acceptance of a producers' harvest, and/or holding regular meetings to discuss and negotiate prices. Other groups also practiced bartering or gift economies (Orito, 2014), where gifts or services

[4] According to the JOAA, there has never been a comprehensive official survey on teikei groups. Therefore, it is difficult to know exactly how many teikei groups were in existence.

were exchanged instead of money. However, the most effective practice in strengthening the relationship between producers and consumers was through "援農" *ennō* (literal definition: *en* = support and *nō* = agriculture), where consumers go and physically help with farm labor. This type of volunteer farm labor engagement served as not only an educational space but also a space to share perspectives and build mutual understanding behind farming and household cooking and consumption.

According to the above principles, teikei served as a vehicle for the movement by ensuring that farmers and consumers planned the growing schedule together (Principle 2) and that consumers accepted the entire harvest no matter the severity of pest or crop damage (Principle 3). Distribution logistics were not to be outsourced to third parties but rather facilitated by either producer or consumer groups (Principle 6). Democratic management and ongoing study groups and education ensured active engagement from all members (Principle 7 and 8). The last principles address the balance between moving towards ideal

Figure 1. Ten Principles of *Teikei*

1. Principle of mutual assistance. The essence of this partnership lies, not in trading itself, but in the friendly relationship between people. Therefore, both producers and consumers should help each other on the basis of mutual understanding: This relation should be established through the reflection of past experiences.
2. Principle of intended production. Producers should, through consultation with consumers, intend to produce the maximum amount and maximum variety of produce within the capacity of the farms.
3. Principle of accepting the produce. Consumers should accept all the produce that has been grown according to previous consultation between both groups, and their diet should depend as much as possible on this produce.
4. Principle of mutual concession in the price decision. In deciding the price of the produce, producers should take full account of savings in labor and cost, due to grading and packaging processes being curtailed, as well as of all their produce being accepted; and consumers should take into full account the benefit of getting fresh, safe, and tasty foods.
5. Principle of deepening friendly relationships. The continuous development of this partnership requires the deepening of friendly relationships between producers and consumers. This will be achieved only through maximizing contact between the partners.
6. Principle of self-distribution. On this principle, the transportation of produce should be carried out by either the producer's or consumer's groups, up to the latter's depots, without dependence on professional transporters.
7. Principle of democratic management. Both groups should avoid over-reliance upon limited number of leaders in their activities, and try to practice democratic management with responsibility shared by all. The particular conditions of the members' families should be taken into consideration on the principle of mutual assistance.
8. Principle of learning among each group. Both groups of producers and consumers should attach much importance to studying among themselves, and should try to keep their activities from ending only in the distribution of safe foods.
9. Principle of maintaining the appropriate group scale. The full practice of the matters written in the above articles will be difficult if the membership or the territory of these groups becomes too large. That is the reason why both of them should be kept to an appropriate size. The development of this movement in terms of membership should be promoted through increasing the number of groups and the collaboration among them.
10. Principle of steady development. In most cases, neither producers nor consumers will be able to enjoy such good conditions as mentioned above from the very beginning. Therefore, it is necessary for both of them to choose promising partners, even if their present situation is unsatisfactory, and to go ahead with the effort to advance in mutual cooperation.

Source: Japan Organic Agriculture Association (JOAA, 2004) (already translated into English).

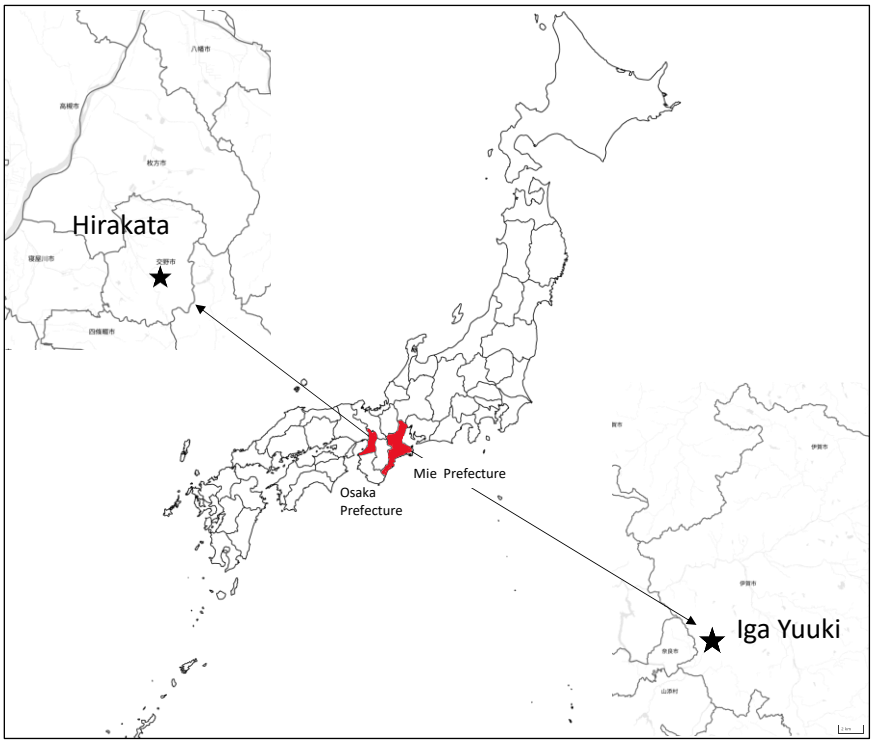
alternatives and meeting the needs of the current reality as an ongoing challenge to overcome (Principles 9 and 10). This prompted a strong unspoken understanding where engagement in teikei was driven by a commitment to the movement and the progression of the group's shared common goal of social transformation.

At the start of the movement, the media frenzy concerning food safety (e.g., the Morinaga Milk arsenic poisoning incident in 1955) and the news of environmental pollution scandals (e.g., the Minamata disease outbreak from methylmercury poisoning 1956 and Yokkaichi asthma from sulfur dioxide emissions in the 1960s) urgently prompted many housewives to find trustworthy sources for safe food. They looked to teikei groups as a solution (Honjoh, 2004). However, as these food crises faded away from the public eye and organic agriculture products were slowly introduced to various natural food stores and small groceries by the 1980s, consumers began to lose the incentive to participate in teikei groups as more options became available (Harayama, 2011). The 1990s pointed to a large decline in teikei, often explained as the result of women increasingly entering the workforce (Kondoh, 2015). Kondoh (2015) points out how children of teikei members were not interested in joining teikei as they started their own families, with many finding it unrealistic to commit to teikei's practices. As housewives' capacity to volunteer declined, Hatano (2008) argues that teikei groups had difficulty building financial viability to pay for staff to coordinate producers and consumers. The decline of teikei points to major challenges that emerge with noncapitalist economic practices, including unsustainability stemming from reliance on volunteer labor and the subsequent impact in supporting producer livelihoods. This calls into question how teikei groups today function, given that Japan holds one of the highest rates of women in the workforce. Yet women continue to bear the biggest burden for household food purchasing and preparation.

Methods

This paper focuses on two case studies that are based outside of the North American and European context. Additionally, these case studies focus on AFNs that formed as noncapitalist economic practices with a strong movement orientation and later transitioned their leadership towards a younger generation. I analyze the motives and shifts in awareness of those who participate in teikei groups today, particularly those in paid positions. Both groups are within the Kansai region of Japan in Osaka and Mie Prefectures (see Figure 2). I conducted data collection (e.g., participant observation of meetings and delivery routes and text analysis of annual reports, weekly newsletters, and meeting records), and carried out interviews between

Figure 2. Map of Case Study Sites (Hirakata in Osaka Prefecture and Iga Yūki in Mie Prefecture)



November 2019 and October 2020. These case studies were selected based on their ability to transition their leadership and engage new members since the decline of Teikei in the 1990s. The case studies represent two styles of Teikei, one that is consumer-led (Hirakata) and one that is producer-led (Iga Yūki). I was introduced to many Teikei groups when I was volunteering at a conference hosted by the JOAA in 2018, where I met one of the founders of the Hirakata group. Our conversations led to my participation in other related events where I met an elder based in Mie Prefecture who then introduced me to the Iga Yūki group. Questions asked of members concerning their entry and motive to participate, what they gained from their involvement, and how they view their relationship to their respective organizations provided understanding about their engagement with Teikei as a diverse economy. Under the diverse economies approach, human subjectivity and its process of 'becoming' provide insight into what postcapitalist politics are desired to look like (Gibson-Graham, 2006; Healy et al., 2020). The findings of this paper are based on semi-structured interviews with 20 consumer-part-time workers, three consumer members, seven farmers, and multiple rounds of informal interviews with informant member-leaders both of the founding generation and current leadership in each respective group. During my research, I faced some obstacles related to COVID-19, which impacted the frequency and size of gatherings since April 2020, when Japan went into its first emergency lockdown. Because I was not a member of either group, I had some difficulty in observing staff meetings as some members were immunocompromised, and the gathering size was limited. However, I was fortunate to participate in some event gatherings, follow distribution routes, conduct farm visits, and volunteer on farms. Since the pandemic began, all interviews were conducted outside and followed social distancing protocols, including mask-wearing and limiting travel on public transportation. For instance, I often used my bike to reach farm sites. In addition, follow-up discussions were done over the phone or through social media platforms during the state of emergency periods when mobility was limited.

Findings and Analysis

While many teikei groups struggled without the support of volunteer labor from housewives in post-bubble Japan, other teikei groups adapted to changing social environments by implementing services such as individual delivery, limiting the quantity of produce in the weekly box, and relaxing its emphasis on teikei as a social movement (Yamamoto, 2020). Each section below details the evolution of teikei from its original form to its more contemporary form. Based on a relative perspective of the diverse economies approach, I analyze how the shifts made to address the challenges of maintaining noncapitalist practices illustrate an evolution of the 'who' and their desires associated with carrying out a postcapitalist transformation.

From Political Education to 'Professionalized Solidarity'

Hirakata Shokuhin Kōgai to Kenkō wo Kangaeru Kai (Hirakata Thinking about Food Contamination and Health) (Hirakata) is a consumer-led teikei group that began in 1975 as a study group of 72 housewives who wanted to understand the issues behind food contamination outbreaks and connections between agrochemicals, food safety, and health. Led by a group of seven housewives, they reached out to peri-urban farmers in surrounding areas who were new entry farmers who had quit their careers in the 1970s. These farmers were the most willing to adapt to agrichemical-free growing styles. This group carried out teikei principles as the farmers organized and carried out the following tasks: harvest drop-off, processing (assisting volunteers with redistribution into weekly vegetable boxes), delivery of the boxes via three distribution routes carried out three days a week, and weekly contributions to the newsletter attached to each box. Hirakata leaders and volunteers assemble the montly newsletter, hold monthly meetings discussing distribution, planting schedules, and price setting, and are responsible for budgeting, accounting, and processing payments. Both producers and consumers contribute their thoughts on food, agriculture, and everyday life to the weekly and monthly newsletter.

However, as the group reached its peak in 1980 (see Table 1), they faced several struggles in maintaining financial viability and had to downsize their operations by moving to smaller offices and processing facilities. While moving offices and undergoing various leadership transitions, some of the membership data were lost (which explains the gap in Table 1 from 1980 to 1997).

By the late 1990s, the decline in membership instigated concerns over supporting the livelihood of their producer members. One farmer wrote in their monthly newsletter and weekly message:

> It's not worth it to call it a job, it's not worth it to call it a hobby, it's a way of life. I'm not growing it for you and you aren't just buying it from me. I'm not doing organic farming as a favor, I'm doing it out of my own beliefs. As farmers all over Japan are collapsing, nothing is more encouraging to me than to continue organic farming in the midst of the collapse of Japan.

His message provided an enduring sense of hope as members struggled to recalibrate and

Table 1. Hirakata Chronology

Date	Member Count	Activities
1975	72	Held study group for mothers and housewives who were gravely concerned about health, food safety, the future of their children, school food, medical treatments, and environmental degradation. Provided childcare support which encouraged more mothers to participate.
1976	400	Started their collective buying club and organized an organic farming group, and later joined JOAA. Within a year of their establishment, they had over 400 members with 40 *han*; each *han* held a leader who met monthly to build out their alternative food system effectively. Participating members voted on leadership.
1977		Established an office and hired 3 people for distribution and secured 2 administrative positions working twice a week.
1978	450	Many women volunteers participated in the processing of vegetable boxes. They created 10+ administrative positions and 30+ who volunteered in carrying out delivery and logistics. 50 *han* units.
1980	500	Peak membership: continually published writings on how eating is tied to the way of life and raising life. They published a recipe book and printed over 28,000 copies.
1997	__	Decided to stop full acceptance of harvest and, through consensus decision making, decided to raise the prices of vegetables by 5% and lower the proportion of sales going back to the producer from 80% to 75%.
2005	248 (123) [a]	Membership falls to half of the peak size. The big issues they faced were that they didn't have enough members to support the livelihood of farmers. They started a monthly newsletter as the number of members continuously declined. They started doing more recreational projects such as calligraphy, arts and crafts, mahjong, harmonica, hiking, etc.
2008	230 (115)	Generational shift in the elected president, as someone in their 40s replaces those of the founding generation (who were in their 70s at the time).
2017	145 (76)	They move offices to a farm shed of one of the farmers into an administrative office that they share with the local botanical garden support association and begin discussions with a local alternative pre-school.
2019	161 (83)	Leadership and staff transition from 70s to 40s. 15 new members join who are mostly mothers from nearby forest pre-school.

Source: compiled and summarized based on organizations annual reports and interviews with founding members*
number who receive teikei box †

* There is a gap in data between 1981 and 2004 as membership data was lost in the transition of offices as they downsized to accommodate for the decline in members.

† To accommodate the decline in members who no longer were able or did not want to receive a weekly box, the organization allowed for different membership types. In addition, not all members who received boxes were receiving them weekly, as some opted for biweekly.

achieve financial sustainability to continue their operations.

The early 2000s were particularly troublesome as they struggled to find connection and significance in carrying out the organization as a social movement. 2005 was the first turning point for intergenerational leadership transition. The new leader had made it clear that she, being from a different generation, held a different belief system, one that veered away from strong notions of activism:

> I'm doing it because I want to. When you say movement, it drains me. … What connects people and things is not 'logic' but through people talking to people on an equal level.

The 2010s were difficult as the organization discussed closing its operations on numerous occasions. However, 2018 and 2019 brought a breath of fresh air as the transition and downsizing of offices provided a new opportunity for connection. Hirakata moved into a producer member's farm shed that was renovated into a shared space for the nearby botanical garden and alternative forestry pre-school and nursery (which needed a sheltered space for rainy days). Meeting the other tenants of the farm shed engendered at least 15 mothers of the alternative preschool to become members of Hirakata's teikei. The influx of members also catalyzed a full transition of the entire administrative staff to a generation of women (mostly in their 30s and 40s) who were not of the founding generation (now in their 70s and 80s). All the administrative staff are paid part-time workers in this transition, although their hourly wage sits below the prefectural minimum wage. Concerning the transition, one of the founding members expressed that,

> I don't expect the younger staff to do what we did. I know that it is often difficult to follow in someone else's footsteps, but we really are just so happy to see someone younger than us take interest. Perhaps they won't fully engage in organic agriculture movement the way we did, but there are interesting things happening in (Katano) about uplifting the community and supporting local.

While on the brink of collapse, the almost serendipitous connection with the local alternative preschool not only provided a means to transition the group's leadership but also continue its legacy of solidarity through a more professionalized form.

From Abandoned Land to New Farmers

The next case study I introduce is *Iga Yūki-nousanbutsu-kyōkyū-center* (Iga Yūki), which was established as a producer-led organization with three farms in 1984 (see the detailed chronology in Table 2). The founding leader began his farming career working on a farm directly owned and operated by another longstanding teikei group in Kyoto. He participated in the student protest movement of the 1960s,[5] which influenced his formation of Iga Yūki, symbolizing organic agriculture as the physical manifestation of the former peace movement. The group currently operates as a nonprofit organization of 17 farmers. Iga Yūki is located in Iga City in the Mie Prefecture; the city holds a unique association with organic agriculture. It hosts Japan's only organic agriculture high school and a commune associated with the Yamagishi movement.[6] Iga Yūki can attribute its success to the high availability of abandoned land left fallow since World War II (approximately 500 hectares), which allowed Iga Yūki to provide new and beginning farmers with land and the chance to establish their farming career as they developed various types of AFN models to collectively distribute their produce. Each farmer runs their own

[5] During the 1960s, Japan faced its greatest mass political demonstrations protesting the U.S.-Japan Mutual Security Treaty, referred to as *Anpo* (Movement). This movement featured a large mobilization of student activists across several universities in Japan (Krauss, 1988)

[6] The Yamagishi movement started in the 1980s and established intentional communities where residents live with minimal possessions and do not conduct monetary transactions within the community. They mostly run poultry raising and egg production operations.

Table 2. Iga Yūki Chronology

Date	Farmer Count	Activities
1981		The founder of this organization trained under one of the founders of natural farming, Tarobei Kumon, who moved to Iga City (as there was 500 ha of abandoned fully irrigatable farmland that was developed after WWII) and started a training center. This served as the foundation for what would later become *Iga Yūki*.
1984	3	They started as three farmers who aimed to use food as a way to disconnect from Japan's bubble economy mindset focused on the pursuit of efficiency and convenience. Before the spread of *chisan-chisho*[1] they were already focused on local production for local distribution. Their growing style centers on a regenerative approach without greenhouses and added agriculture chemicals or synthetic fertilizer.
1988		They became involved with the anti-nuclear movement after seeing the aftermath of Chernobyl. They began connecting with nearby fishermen and held classes on handling chicken and fish.
1989		They began supplying rice in addition to vegetables. They started hosting study groups and experiences for consumers and producers to plant rice, weed, and harvest together.
1992	4	They changed their growing style from many (50-100) varieties to a medium (20-30) diversity of varieties to accommodate the expansion of consumer cooperatives in multiple prefectures.
1995		Started vending as a direct farm stand in the neighboring city, Nabari City.
2004	9	Leadership changes to another family and thus begins a system of taking in apprentices and nurturing farm successors in Iga; their apprenticeship program becomes fully established in 2010, where apprentices enter a 2-year program with the goal of becoming an independent farmer in their 3rd year.
2008	11	The direct sales shop, *Yūki Genkiya*, opens in Nabari with the help of their consumers. Consumers and producers developed the business together.
2011	14	Two farmers who joined in 2009 began *Norasuke*, an opportunity for consumers and nearby residents to work part-time on the farm. Their teikei-style distribution also faced significant growth from 40 to 300 households.
2012	18	They re-establish themselves as a nonprofit organization rather than just a distribution group for farmers. The organization connects consumers and producers to live out their values of 1. Living with nature and all living things. 2. Taking our own lives into our own hands and be closely tied to the land that feeds us 3. Doing it yourself.
2019	14	The goals of the organization shift priorities towards trying to better stabilize the livelihood of farmers, expand farmland cultivation, accept new trainees, and build deeper connections with consumers to expand their reach.

† *Chisan-chisho,* or "local production for local consumption," refers to a policy initiative developed by the Ministry of Agriculture, Fisheries, and Forestry (MAFF) to improve food self-sufficiency and boost domestic production via a new branding scheme to restore trust in the safety of food (Nishiyama & Kimura, 2005).

operation but collectively grows between 50 and 60 varieties, with any one farmer growing between 10 and 30 varieties. Planting schedules are negotiated among the farmers and decided by the needs of their various market outlets. Before 2011, they primarily distributed their produce to Kyoto and the surrounding Kansai region. They delivered to both teikei groups and consumer cooperatives and operated a weekly direct farm stand in the neighboring city every Tuesday morning, where any leftover crops were sold at reduced prices.

In 2010, three new and beginning farmers joined the group; their participation helped expand the teikei-style distribution system from 40 members in 2010 to 300 members by 2012. They currently have 370 members. Every Friday, two producers personally distribute the boxes within the surrounding area. There are two types of boxes: Type A includes seven varieties sold at 1080 yen (US$10) (delivery fee is included), and Type B features seven to 10 varieties sold at 1200–1400 yen (US$13.50). Each box comes with a newsletter with the listed varieties, producers' names, and a reflection written by one of the member farmers.

Since the founding of their organization, they practice the principle of *ennō* by hosting monthly events inviting consumers and consumer groups to come to the farm and participate in community-

building activities. In 2011, at one of these farm events, one of the newer farmer members pitched an idea to another consumer member to develop a part-time work opportunity on their farm. The initiative is called *Norasuk*e, where anyone is welcome to come to the farm, work part-time in the field, and assist with processing and packaging. *Norasuke* was set up with intentional flexibility so that mothers could come freely on the days that worked best for their schedules and bring their children to the farm to play while they worked. The motivation behind the program was to give consumers a better understanding of how food is grown on the farm. For the farmer, the economic inefficiencies in hosting inexperienced people as farmhands outweighed the nonmarket impacts, allowing for the teikei principle of *ennō* to occur.

From Volunteerism to Institutionalization…

Gibson-Graham (2006) emphasizes the interdependence of economic subjects as a critical component of diverse economies where interdependence is not fixated on realizing a specific ideal but rather is a more versatile exploration of "economic being-in-common" (p. 86). The changes made by teikei groups also reflect the shifts in mindsets of younger members and their diversity of perspectives. Table 3 provides an overview of the part-time workers interviewed who worked at Hirakata or *Norasuke*. The semi-structured interviews better clarified their motivation for involvement and provided hints as to why participants diverged from activist identities, which served as a strong foundation and basis for teikei as a social movement.

Despite the variety in motives for participation, there was little to no mention of a desire to hold an activist identity or engage in a hard label of "movement" building. Some came because they heard there was an opportunity for employment that had flexibility. As a young mother or as a retired woman, they found it was the appropriate amount of work that could be managed and still get home in time to cook dinner and carry out other household responsibilities. One of the founding organizers of *Norasuke* mentioned:

> It is not common practice or, actually, one is not in a position to ask someone to volunteer. Volunteering is something that one chooses out of their own fruition. When I was approached to see if there would be any mothers in the area interested in working on the farm, I was taken aback at first. But at the time, I had a two-month-old daughter and was concerned about how I would ever be able to go back into the workforce, and so we began this interesting project. Before you know it, it's been 10 years.

Another interviewee from Hirakata said,

> I used to see the sign for their organization: Hirakata Thinking about Food Contamination and Health Association, and I honestly believed it was some kind of a cult. It seemed very intimidating. … However, once another mother from the same forest pre-school that my child attends was telling me about purchasing a weekly vegetable box grown locally, I was eager to buy. I had no idea it was the same organization.

The difficulties in recruiting volunteers and cult-like impressions made teikei groups unapproachable and developed a wall of exclusivity. There were participants in both groups who carried a distaste for 'movements,' which contrasted with the founding members. Many founding members shared anecdotes about hosting political education workshops and engaging in weekly study on connections between organic agriculture and environmental sustainability or other social issues such as the dominance of nuclear power plants. The spirit and discipline of the movement were a clear source of motivation for those of the founding generation.

Very few of the new members carried explicit motivations related to teikei principles or the desire to critically engage in the decommodification of food. For instance, not all those who worked for Hirakata or *Norasuke* were exclusively teikei consumers. In fact, the consumption patterns varied from some mothers who said they went to the supermarket every day in addition to their weekly box to those who said they could only afford to buy organic vegetables from teikei and weren't sure if they would be able to afford it when their children grew older and consumed more food. The

Table 3. Profiles of Interviewees

No.	Age	Org.	Years	Motivation to join	How they found out about it	Consumption pattern
1	40s	Hirakata	2	Health	Through a friend	Receives only vegetable box
2	40s	Hirakata	2	Children have allergies	From pre-school	Receives only vegetable box
3	40s	Hirakata	2	Looking for part-time work	From pre-school	Buys from teikei and supermarket
4	80s	Hirakata (consumer)	-	Widowed	From neighbor	Buys from teikei and consumer cooperative
5	40s	Hirakata (consumer)	-	Used to work for an organic business	From friend	Buys from teikei
6	40s	Hirakata	2	Looking for flexible work	Recommendation from nursery school	Receives only vegetable box
7	40s	Hirakata	20	Health	From a friend	Buys from teikei
8	30s	Hirakata	5	Looking for part-time work	Father is one of the farmers	Vegetables from farm and teikei
9	50s	Hirakata	25	Was involved in organizing around environmental pollution	Attended a lecture	Buys from teikei and supplements with consumer cooperative
10	50s	Hirakata	20	Grew up with lots of allergies	Through a friend	Buys from teikei and supplements with natural food stores
11	40s	Hirakata	3	Concerned about eating ethically	From pre-school	Buys from teikei and natural food companies
12	70s	Hirakata	30	Didn't know anything about cooking and living in urban area	Learned about it from tea ceremony class	Currently living alone, widowed. Mainly consumes from teikei
13	70s	Hirakata	45	Concerned with food safety	Founder	Buys from teikei
14	70s	Hirakata	45		Founder	Buys from teikei
15	30s	Iga Yūki	1	Children have allergies	Buys from Iga Yūki farm stand	Pretty strictly organic
16	70s	Iga Yūki	4	Moved recently and needed to find something to do	Her daughter receives weekly box	Used to never purchase vegetables, but now enjoys cooking with vegetables
17	50s	Iga Yūki	6	Had an organization about children and connecting them to food	Farmer reached out to her to start *Norasuke*	teikei and occasional trips to favorite organic stores.
18	40s	Iga Yūki	4	Had two small children that loved to play outside	Friends with Farmer	Buys from teikei
19	30s	Iga Yūki	2	Wanted to meet more people	Neighbor receives weekly box	Shops every day at the supermarket plus teikei
20	50s	Iga Yūki	8	Holds own business; comes once a week	Through an event	Shops at local corner and buys domestic at grocery store
21	70s	Iga Yūki	5	Likes gardening	Heard from friend	Doesn't buy from Iga Yūki but buys from direct market
22	50s	Iga Yūki	7	Flexibility of schedule for part-time work	Lives walking distance from farm	Eats seasonally; buys teikei

strict adherence to consuming exclusively through teikei proved difficult both on economic and philosophical levels. One interviewee noted, "This idea of movement. It just seems very hard. Especially today when there is so much information out there. I don't know what to believe anymore." The above examples point out the difficulties involved in achieving the principles of the teikei, as it presents as an almost fixed fantasy that cannot be met by younger generations who face other hurdles unveiled by other aspects of subjectivity, such as class and educational background.

The challenge remains in upholding the relevancy of the teikei movement and its principles. In contrast to the founding members who saw teikei as a vehicle for political and social transformation, current members do not hold a strong desire to address issues related to food and agriculture. Rather, they pointed to other social problems such as social isolation and social fragmentation. For example, many of the new members of Hirakata are connected through the alternative preschool and also regularly gather and participate in community events and grassroots operated programming that supports children in finding and believing in their inner-most self. Such group activities are invested in creating spaces that will provide their children a liberated space to be 'themselves.' These various events reflect a sense of wanting to instill in their children pride for themselves and the community they live in. There is not a strong notion of 'doing it because it's for the movement' or a sense of being in solidarity with other like-minded 'movements.' However, there is an underlying rejection of the mainstream and a desire to live an alternative life, which is also well documented in several accounts of new entry organic farmers in Japan who reject the rigidity of Japanese society (Hisano et al., 2018; McGreevey & Akitsu, 2016; McGreevey, 2012; Rosenberger, 2017). For members of the current generation, engagement in teikei has more to do with supporting their local community over the act of transforming the food system. The younger generation and their values have reshaped the interdependence of economic subjects in diverse economies. Teikei has shifted from striving to achieve a certain ideal towards becoming a looser community, of which teikei serves as an element in the pursuit of living a meaningful life for group members and their children.

From Decommodification to Viable Modern Livelihoods

As the two cases present examples of the shifting teikei labor distribution (volunteer to paid) and the changing practice of *ennō*, there remain several issues that both consumers and producers face. Teikei as a practice is rooted in the decommodification of food. However, it also faces the struggle of meeting both the needs of its producers and consumers. Both cases only provide part-time labor (vs. full-time labor) for consumers. While neither group depends on outside grants to operate their organizations, they actively strive to achieve financial sustainability. For instance, *Norasuke* is financially feasible because Iga Yūki growers create enough revenue to pay for their consumers to work on the farm. Iga Yūki growers hold multiple markets outside of their teikei model to distribute their produce. Their teikei system makes up approximately 40% of its distribution, and 50% goes towards other buyers, such as consumer cooperatives and a teikei group in Kyoto, which doesn't have weekly face-to-face interaction with consumers. The remaining 10% is sold through their direct sales market. Like many other CSAs that struggle to provide adequate economic well-being to the farmer (Pretty et al., 2010; White, 2020), producers in teikei must find additional markets to sustain their livelihood. Diversified distribution streams allow Iga Yūki to continue training additional farmers who will sustain a viable livelihood. Their collective scale as a group of farmers gives them autonomy to achieve parity pricing and ensures that they can sustain their local teikei system by offering their vegetable box at accessible prices and providing part-time work opportunities through *Norasuke*. One farmer stated,

> I am a farmer in order to grow food for as many people that can eat what I grow. However, it is difficult to attract new farmers as they tend to want to grow the most lucrative crops. We all have our preferences in what we want to grow and what we have the skillset to grow. There is also the desire to not become a factory-style farm and yet be a farm that can still make enough to support our families as full-time commercial farmers.

Based on the two case studies, teikei is not a singular model that farmers can solely rely on to maintain their livelihood. In Hirakata, two of the four farmers are in retirement and receive pensions. The other half distribute to markets such as online sales or carry out their own individual-to-individual CSA style box scheme. The diversity of

markets that farmers must engage in to maintain their livelihood is a larger reflection of the increasing number of choices consumers have today in accessing organically grown produce. This also reflects the diminishing influence of teikei and its function as an alternative economic practice. The teikei model alone cannot meet the needs of producers who must create viable livelihoods for themselves. Therefore, producers rely on other more capitalist economic exchanges and market transactions with larger-scale markets, such as consumer cooperatives and grocery stores, where the interaction with their consumers is not as intimate or robust as with their teikei consumers.

Limited Accessibility of Teikei for Busy Lifestyles
There are other limitations towards the type of people teikei can engage. This study did not collect class backgrounds of consumer-members. Additionally, this study cannot empirically back claims that systemic inequality and structural impediments limit who can engage in diverse economy-oriented AFNs where more time and sense of engagement outside of the market transaction is required (Alkon & Guthman, 2017; Galt et al., 2019, Galt et al., 2017). However, within both case studies, there were little to no participants who were single-person households. Many respondents had mentioned that they don't see how single-person households would want to join based on their own experience living alone. Multiple people mentioned how before starting a family, they ate out constantly and never made time to cook for themselves as they were too busy to think about preparing their food the way they do so today. At the World Economic Forum in 2019, former Prime Minister Shinzo Abe had declared that 67% of women ages 15-64 were working. However, Japan's continued decline in the World Economic Forum's Global Gender Gap Index (ranked 120 out of 156 countries in 2021) suggests that Japan's cultural norms still uphold a strong gendered division of labor in which women are expected to be responsible for most domestic labor including cooking and household chores. Therefore, teikei as a place for a parttime job and as a place where children are welcomed might provide greater appeal as an ideal situation given the little changes in gender roles and responsibilities at large.

Discussion: Is Teikei still a diverse economy?

Re-imagining of Work and the Workplace
While the use of paid labor and the loss of *ennō*/volunteer labor might blur the lines of teikei operating as a diverse economy, I argue that there is a re-imagining of 'work' and 'workplace' that is taking place within both organizations. Reflections point towards additional forms of non-monetary exchange occurring:

> I came here because I needed a job. I needed to find a job while my child was in nursery school. I felt like I had lost a sense of who I was since I became absorbed in child rearing. I like working here—I get to hear so many interesting stories about farmers and cooking skills I would have never thought about. (consumer member with Hirakata)

Both spaces were child-friendly, and I regularly witnessed children playing in the office and on the farm fields as their mothers worked on fulfilling orders, processing, and other farm activities. This kind of re-imagination of the workplace not only functions as a direct challenge to the monoculture of *capitalocentrism* but also presents a different imaginary, one where "transformation relies on reimagination as political labor" (Cooper et al., 2019, p. 21). Furthermore, the use of paid labor does not signify the embodiment of 'neoliberal subjectivities' where individual behavior and choice serve as steadfast solutions to the ills of the conventional food system (Harris, 2009). While the exchange of money for labor represents a market exchange, the associated social relations and benefits that spur from interpersonal ties exhibit greater complexity (Hermann, 1997). In fact, AFNs like teikei might not have to be solely reactive or oppositional against capitalism but can be a subset of broader configurations of political and economic relations (Smith & Jehlička, 2013). Based on my conversations with both groups, there were moments shared in which a strong sense of cama-

raderie was recognized, where many members appreciated the openness of frank opinions being exchanged concerning food, cooking, caretaking, childrearing, and farming, and the occasional gossip and political news being shared and expressed. One of the members at *Norasuke* shared:

> I cannot think of another workplace that would allow me and my friends to bring our children on the farm, and while they enjoy the outdoors, we are able to work and converse and take home leftover harvest that would otherwise go to compost.

Ennō as paid labor provides more sustainable access for people, especially mothers, to engage in teikei*,* which continues to manifest alternative possibilities to engage with a more intimate and local food system.

Teikei as Space for Self-Transformation

The interactions consumers shared on the farm, with farmers, and operating teikei created many opportunities for learning-by-doing and self-transformation. Not only are the lines between producer and consumer blurred in these spaces, but the conversations shared among farmers, consumers, and workers can catalyze findings of the self beyond their role of mother, wife, or retired woman. Some of the members of *Norasuke* took the core principles of teikei even further by starting their own garden plot at the farm fields:

> I started a garden plot next to one of the fields where I'm planting edamame and herbs. I never thought I would be someone who could grow food. Of course, I'll never be a farmer, but I never realized how much I enjoy being able to work outside and be surrounded by nature. I even have gotten my husband to come and work on the weekends too.

The actions that have organically spurred from part-time work are representative of the collective action Gibson-Graham (2006) refers to in their proposition of the community economy as an "acknowledged space of social interdependency and self-formation" (p. 166). This everyday practice is built-in within a collective environment where economic possibilities beyond capitalism can occur—creating spaces of community within the workplace and deepening ties between people within a food supply chain. Orito (2014) also cites the transition away from movement orientation towards relationships that resemble family—such as when she describes the concept of *morotomo*[7] in her case study of CSA in Japan.

Chatterton and Pickerill's (2010) analysis of everyday activism helps inform how daily practices such as engaging in teikei as paid work can forge new identities that embrace the obstacles that emerge in the in-between space of capitalist society and noncapitalist. Rather than resting on a clear distinction of activist and non-activist/capitalist and noncapitalist, the blurry space that experiments with making a "material difference to livelihoods" (Chatterton & Pickerill, 2010, p. 487) aligns with the diverse economy approach. The transition of leadership from the founding generation to a younger generation provided opportunities for new ideas that were better suited for the shifts in values that diverge from strong activist orientation.

Conclusion

In this paper, I examine the practices of teikei groups that have transitioned their membership from the founding generation to a younger generation of members who currently raise children. The case studies of teikei provided in this paper offer insights into how organizations that held strong roots and ideals (i.e., noncapitalist economic practices) in establishing AFNs adapt to the changing realities, cultural values, and norms that occur within and across different generations. First, most current participants who work for teikei organizations in the two case studies reject identities associated with movement activism, representing a widening gap between the intentions of the founding leaders of teikei and the associated organic agriculture movement. Second, the transition of

[7] *Morotomo* refers to a notion of togetherness in the sense that one will be there for one another no matter what the circumstances are. It goes beyond the sense of co-existence as both parties take on the risk together.

volunteer labor to paid labor and engagement in diversified distribution streams provides an opportunity for the essence of teikei movement principles to exist. Third, while the initial motivation of current members had little to do with teikei principles, the everyday practice and intimate engagement with alternative food systems provide a unique space for reflection for other noncapitalist imaginaries and new subjectivities to form. I argue that teikei today continues to embrace elements of diverse economies because the use of paid labor allows for members to continue to explore their interdependence and establish an economic being-in-common (Gibson-Graham, 2006). These findings show that despite the shifts in who carries out postcapitalist transformation, the outlook of the current teikei members and leaders confirm Gibson-Graham's (2006) reflection on how interdependence on economic subjects is not about being of the same but rather embracing difference. teikei still constitutes a diverse economy despite its loss of activist orientation because nonmarket benefits of self-transformation and the re-imagining of work are taking place within spaces where teikei activity occurs.

There are looming questions surrounding who will continue farming and whether weekly vegetable boxes will endure as future generations in Japan face increasing rates of aging, depopulation, and prepared food production and consumption (e.g., the average age of farmers currently is 70 years old, with only 10% of farmers under the age of 40 [McGreevey et al., 2019; Rigg et al., 2016]). Further research should look into how AFNs that embody diverse economies approaches address the challenges that occur in the blurred zone between living within the monoculture of *centrocapitalism* and establishing sustainable noncapitalist economic practices that meet the needs of both consumers and producers. Additional research should also analyze the class dynamics occurring among farmers and consumers, assessing whether or not teikei models in Japan are limited to more affluent consumers. AFN models such as teikei continue to face challenges in closing the gap between ideal alternative futures and reality. Digital agri-technologies are rapidly changing consumer habits, particularly how people engage with one another and their food. Trial and error of different methods to bring producers and consumers together in more meaningful ways outside of strictly market transactions will continue to inform the pathways for local equitable food systems to sustain themselves.

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POLICY AND PRACTICE BRIEF

Improving the function of a high obesity program: Findings from community-engaged Mississippi Delta focus groups

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Abstract

In this policy and practice brief, Mississippi State University Extension Services applies a coalition-driven approach to addressing the prevalence of obesity in communities in the Mississippi Delta through its High Obesity Program, funded by the Centers for Disease Control and Prevention (CDC). Focus groups were conducted with coalition members from six counties to evaluate efforts by this program. The evaluation team used content and thematic analysis to report on coalition activities. Some of the barriers coalition members identified were limited access to healthy foods and the need for more assistance from program staff. Action items were developed and implemented in response to focus group feedback. These items

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included enhanced communication tools and coalition trainings. This evaluation brief describes some of the common challenges in coalition building and innovative ways to improve them. Our focus group findings are also valuable to public health scientists and practitioners working in rural communities.

Keywords
Obesity, Nutrition, Physical Activity, Focus Groups, Rural Health, Health Equity

Introduction

Food insecurity is the lack of resources to access healthy foods (Dhurandhar, 2016). Ironically, food insecurity and obesity often co-occur. It seems logical to assume that food insecurity would cause a deficit in food consumption and reduce obesity. However, economic factors can limit the ability to purchase nutritious foods, which leads to conditions of overweight and obesity (Dhurandhar, 2016). The Mississippi Delta is a prime example of this paradox of food insecurity and obesity, with 17 of the 19 counties experiencing at least 15–19% food insecurity and eight of the 19 counties facing obesity rates greater than 40% (Feeding America, n.d.; Mississippi State University Extension, n.d.). The highly agricultural nature of this region also limits community connections due to low population density (Whitley, 2013). Low social capital influences rural residences' ability to network and access healthy foods that are unavailable through retail outlets (Whitley, 2013).

AIM for CHangE (Advancing, Inspiring, Motivating for Community Health through Extension) was funded through Mississippi State University (MSU) Extension's CDC-High Obesity Program to reduce obesity and food insecurity in Mississippi counties with obesity rates greater than 40% (Mississippi State University, n.d.; Murriel et al., 2020). AIM for CHangE works to reduce obesity by improving existing nutrition and physical activity-related projects and establishing new programs. Reducing obesity in these counties is primarily achieved through (1) increasing access to healthier foods; and (2) promoting physical activity (Baird-Thomas et al., 2020). In this policy and practice brief, AIM for CHangE team members evaluate the strategies used to implement projects designed and carried out by county-based coalitions. Coalitions were composed of stakeholders that represent multiple sectors within their communities and individuals that are interested in improving health outcomes in their county (National Association of County and City Health Officials [NACCHO], n.d.). Coalitions were able to apply for funding through AIM for CHangE. Supported projects focused on improving nutrition, increasing fruit and vegetable consumption, and encouraging active living or increasing physical activity.

Evaluation Approach

This report describes efforts to evaluate the effectiveness of practices and procedures used by AIM for CHangE to reduce obesity and clarify community needs. There were 10 approved projects in the early stages of implementation during focus groups. Focus groups were facilitated by the programs' evaluation team: two research scientist and a graduate research assistant (Baird-Thomas et al., 2020). The interview guide, available from the corresponding author upon request, stimulated responses on the development of coalitions, level of support provided by AIM for CHangE agents, and perceived barriers to access healthy foods and physical activity (Baird-Thomas et al., 2020). Each focus group participant was offered a US$25 gift card to a local retailer (Baird-Thomas et al., 2020). Focus group sessions were recorded, transcribed, and analyzed for reporting to the CDC. Facilitators utilized thematic analysis to identify categories and concepts from focus groups (Braun & Clarke, 2006). Once researchers came to a consensus on specified themes, results were documented.

Findings and Collaborations

The findings in this report will focus on programmatic functions and food access. Six focus groups were conducted with 39 coalition members (Baird-Thomas et al., 2020). Focus group participants' ages ranged from 38 to 79 years old and participants identified as either White or African American (Baird-Thomas et al., 2020). Quotations from focus group participants can be found in Table 1.

Focus group participants requested clarity from staff on guidelines to identify projects eligible

Table 1. AIM for CHangE Focus Group Findings and Themes

Themes	Focus Group Quotations
Agent Competency	*He gave us a lot of information on how to train us, how to get the statements. He gave us a booklet on how to get that written so that it could be accepted.*
Group dynamics and expanding funding	*. . . And then we made a decision together about how we were going to allocate the money. How many organizations or how many communities we had in the room, we tried to be equitable with it. . . .*
Implementation of projects and nutrition standards	*We serve about 80 people a day at the soup kitchen. Or, more it depends on the weather and time. . . . I tell them how to eat foods that, less sodium. . . . We were able to get a stove, a commercial stove. . . . But now everything is growing, and it's been a blessing.*

for funding (Baird-Thomas et al., 2020). Coalition members provided encouraging feedback about collaborating with AIM for CHangE agents (Baird-Thomas et al., 2020). Focus group findings revealed that coalitions used their allotted grant funding in communities with the greatest need. Our administrative staff was pleased to observe the process community members used to select projects for funding. However, coalition members did not choose other relevant opportunities due to limited funding.

Coalition members revealed that access to food sources and healthy food outlets were limited (Baird-Thomas et al., 2020). Participants reported traveling on average 10 miles to purchase groceries with full-scale grocery stores ranging from five to 60 miles away from their home (Baird-Thomas et al., 2020). Community members reported utilizing food pantries, farmers markets, and community gardens to access fresh produce and other necessities (Baird-Thomas et al., 2020). Food pantry leaders also made staff aware of the implementation of grant-funded equipment and the incorporation of nutrition guidelines when preparing meals.

Lessons Learned and Responses to Implementation

Focus groups allowed our team to better understand how our coalitions function and their barriers to improving diet quality and active living. These findings also illuminated areas for improvement in our process for disseminating and distributing collected data among coalitions. To reduce the stigmatization of utilizing food assistance programs and improve nutrition standards, AIM for CHangE hosted virtual trainings on food insecurity and the Choice Food Pantry Model during the summer of 2020 (End Hunger in America, n.d.). In addition to reducing obesity, our staff is implementing strategies to encourage the sustainability of coalitions after the culmination of our program. For example, we held a grant-writing workshop to teach community members the process of identifying and applying for funding opportunities in addition to AIM for CHangE funding. Adapting to community preferences and creating an open dialogue with our coalition members has been fundamental to our program's success thus far.

Implications for Practice

This evaluation underscored the importance of collaborating with our communities instead of using exclusively academically led approaches. Utilizing focus groups for data collection and community engagement has proven an adequate evaluation method for our program. While our long-term goal is to reduce obesity, it is paramount to our team to maintain positive and productive relationships with the communities we serve. Other community initiatives can utilize our focus group findings to develop programmatic efforts and plan for the future.

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Controlled environment agriculture and containerized food production in northern North America

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Abstract

There is an ongoing debate about the role of controlled environment agriculture and containerized food production in local food systems in Northern North American communities. Some critics dismiss these applications as ineffective, arguing that because they marginalize certain populations they do not have a place in northern food systems. However, such critiques are premature and undermine what may prove to be an important and complementary component of local and regional food systems in the north, particularly if designed and implemented in a culturally appropriate and place-based context. Containerized food production can offer enhanced food production capabilities for communities through year-round production. While there are still concerns about proper growing protocols, scalability, output, durability, and

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Alex Wilkinson, Craig Gerlach, and Henry Penn are involved in the ongoing containerized hydroponic system experiment at the Kluane Lake Research Station. The research project is funded entirely by two anonymous donors and the Peter Gilgan Foundation. Collaborations include the broad local community, and specifically local producers and consumers.

economics, these can be addressed, modified and improved through research and continued applications. New opportunities requiring further exploration in the application of containerized food production systems include, but are not limited to, integrative systems design, the enhancement of community development initiatives, and the integration of the social networks that are necessary for diversified local food production.

Keywords
Controlled Environment Agriculture, Northern and Subarctic Communities, Containerized Food Production Systems, Food Security, Local Food Production

Introduction

There is a growing debate about the potential role of controlled environment agriculture (CEA) and containerized food production systems (CFPS) in local food systems (Pinstrup-Andersen, 2018), and these debates are now occurring more specifically in the context of northern communities (Kozachenko, 2020). These discussions are of particular importance for northern communities in Canada and Alaska, where food security is an ongoing challenge (Guo et al., 2015; Inuit Circumpolar Council-Alaska, 2015; Kluane First Nation & Arctic Institute of Community-Based, n.d., 2016; Tarasuk et al., 2016; Todd, 2010).

Recent criticisms of the role of CEA focuses on an Indigenous context claim that CEA is just another form of outside or "top-down" development (Kozachenko, 2020). While this may be true in some circumstances, we advocate for CEA applications that are relevant for multiple northern rural communities and operations instead, including but not limited to Indigenous communities. Regardless of the community, operation, or system used, all applications must be situated in an appropriate local cultural context and must be designed and implemented in ways that serve the community needs as defined by each community, whether Indigenous, urban, rural, or industrial.

We propose that there is no single or "one-size-fits-all" solution to northern food and nutritional security. We do suggest that CEA remains a potential contribution to a more food-secure future for northern communities, especially in a context of economic, political, and climatic uncertainty (Pinstrup-Andersen, 2018; Treftz & Omaye, 2016).

The extent to which CEA will be a viable northern food system option going forward depends on a great deal of research and community engagement that remains to be undertaken. With respect to northern communities, we do not view CEA and CFPS as a silver-bullet solution to food and nutritional security. However, we do see the potential for containerized systems to be part of a diversified and integrated food system that has the capacity to meet local and even regional food and nutritional needs. Recognizing that CEA and CFPS will not meet all community food needs, but that they can still play a role in supporting both food and nutritional security is important because they can function as complementary systems that are place-based, culturally appropriate, and designed to meet specific community needs as defined by a community.

In this article, we provide a brief overview of food security issues in northern communities and an overview of CEA and CFPS. We then discuss the advantages and disadvantages of the specific CEA application of CFPS when compared to industrial agriculture and greenhouses and outline the social, economic, and environmental factors that must be considered. Following this, we present some challenges and opportunities for CFPS in the context of future research.

The purpose of this paper is to provide a review of CEA and CFPS in the context of northern applications, to discuss critiques, challenges and drawbacks, advantages and disadvantages, and opportunities, and to provide the basis for understanding what further work is needed to explore successful models going forward. Our focus is on subarctic applications of containerized food production systems, with an emphasis on hydroponic growing methods. We are interested in all northern communities, including but not limited to Indigenous communities, off-grid communities, and industry camps. Definitions for rural and urban vary; for our purposes northern rural communities are disconnected from the road and marine highway systems and/or have a population less than 1,000 (Goldsmith, 2007; Statistics Canada, 2018).

Food Security in Northern Communities

Food security in northern communities is challenging due to remoteness, severe weather, and short growing seasons, among other social-ecological factors. Despite these challenges, communities have thrived using subsistence strategies such as hunting, fishing, and community gardens (Gerlach & Loring, 2013). Livelihoods in the communities have traditionally centered on the harvest of country foods,[1] although there has been a long-term transition to a cash economy, with increasing reliance on industrially produced, store-bought foods imported from outside and transported long distances.

While commercially available foods provide one measure of food security, the availability and quality of these foods are subject to the vagaries and vulnerabilities of a global food system. Access is dependent on one's ability to pay for store-bought foods that do not fulfill many of the roles that country foods play in northern communities (Loring & Gerlach, 2009). According to Loring and Gerlach (2009), "this transition is having severe consequences for the health of people and for the viability and vitality of rural communities, and in subtle ways that are not always tracked by conventional food security methodologies and frameworks" (p. 466). This dietary or nutritional transition has resulted in diets of poorer nutritional quality, with negative health outcomes related to metabolic and cardiovascular syndromes and diseases, including Type 2 diabetes, coronary heart disease, and colorectal cancer (Hurwitz, 1977; Loring & Gerlach, 2015). With the ongoing climatic and regulatory impacts on country food and adverse dietary-related health outcomes, the need for local food production strategies that are new and innovative, but still place-based and culturally appropriate, is growing.

Methods

This review is based on observations made in public news media, informal input from individuals living in Yukon Territory and Alaska, and existing literature on CEA. These sources reveal a variety of perspectives and opinions on the place that CEA has or may have for local food production in northern communities. Given the evolving nature of these technologies and the limited community-based research that is available, more substantive research on CEA is needed for communities to make informed decisions about how and under what conditions CEA can be applied successfully in northern communities (Gomez et al., 2019; Kozachenko, 2020; Pinstrup-Andersen, 2018). This paper was developed using an extensive but non-systematic literature review (Berry et al., 2015; Ferrari, 2015). Peer-reviewed journals, books, non–peer-reviewed literature, and government and industry reports are included in our review.

Overview of Containerized Food Production Systems

Containerized food production systems are a form of CEA where a container (a shipping container, for example) is repurposed for food production, although in some cases a new container is used due to concerns around the structural integrity of the recycled containers (Newbean Capital, 2017). In these systems, environmental conditions are controlled for optimal plant growth and primarily utilize soilless agriculture techniques (Newbean Capital, 2017; Raviv et al., 2019). CFPS are often used in situations where industrial agricultural production capacity is limited, or where food miles and "price at market" vulnerabilities exist, as is the case for both urban and rural northern communities (Coley et al., 2009; Gómez et al., 2019; Loring & Gerlach, 2009).

There are numerous techniques and systems that can be used in CFPS, including but not limited to soil-based growing mediums and aquaponics, although hydroponics and aeroponics are probably the most common (Gómez et al., 2019; Newbean Capital, 2017). There are different hydroponic techniques in use now, including the nutrient-film technique, deep-water culture, and aggregate culture. The nutrient-film technique uses a thin film of solution that constantly flows over plant roots, while deep-water culture has plant roots that are constantly submerged in a flowing solution. Aggregate culture has plants in bagged substrates or

[1] "Country foods" refer to food harvested from wild animals and plants (Loring & Gerlach, 2009).

containers with a drip system for the nutrient solution (Gómez et al., 2019). Aeroponics systems mist roots with a nutrient solution at specific time intervals and volumes (Eigenbrod & Gruda, 2015). The scale of CFPS systems ranges from small at-home operations up to large-scale container farms or "plant factories" (Gómez et al., 2019; Newbean Capital, 2017).

Containerized Food Production Systems: Advantages and Disadvantages

Containerized food production systems, greenhouses, and open-field farming each have strengths and weaknesses in relation to operations, resource use, and crop yields, among other factors. Table 1 outlines some key differences between container farms, greenhouses and field farming.

Advantages

Key advantages of CFPS is season extension, year-round food production, and improved yields per acre or unit when compared to industrial open-field farming and greenhouses. These advantages are amplified when considering the potential of these technologies in northern climates where industrial agricultural opportunities are limited due to short growing seasons, poor soils, and challenging growing conditions (Gómez et al., 2019; Kalantari et al., 2017; Loring & Gerlach, 2015). CFPS and greenhouses eliminate or significantly reduce the risks associated with extreme weather events such as hail and flooding, and provide some control over growing conditions, including temperature, light, humidity, day length, and carbon dioxide levels to maximize growth rates and yields (Gómez et al., 2019; Raviv et al., 2019).

Risks associated with soil-borne pathogens, among other pests and pathogens, are eliminated or significantly reduced when not using a soil-based medium, and where appropriate cleaning procedures are maintained (Gómez et al., 2019; Raviv et al., 2019).

CFPS minimize water consumption through a variety of controlled irrigation techniques, closed-loop irrigation systems, humidity control, and capture of evaporated water for reuse (Raviv et al., 2019). Beyond specific production and resource

Table 1. Comparison of Containerized Food Production Systems (CFPS) Using Hydroponics, Greenhouse, and Field Farming

Presenting both CFPS and greenhouses demonstrates the differences that can exist between various controlled environment agriculture (CEA) applications.

	Container Farms	Greenhouse	Field Farming
Light source	Electrical lighting	Sunlight and/or electrical lighting	Sunlight
Growing season (days/year)	365	365	Variable
Soil Use	Variable	Variable	Yes
Harvests per year	8–12 for lettuce	6–7 for lettuce	Usually 2 for lettuce
Water source	Local water network	Local water network	Rainfall and irrigation
Water use (gallons/head of lettuce)	0.3	0.3	6.5
Electricity use	High: Lights run 12–20 hours daily and the heating system is run in winter.	Variable: Lights generally run more than 2–4 hours daily and the heating system is run in winter.	Low
Pest control use	Variable: Enclosed environment and integrated pest management as needed	Variable: Enclosed environment and integrated pest management as needed	Variable: Pesticides, herbicides, tilling, mulching, weeding and integrated pest management
Production (heads of lettuce/acre/year)	5,000,000	1,600,000	50,000

Source: Modified from Coyle and Ellison, 2017.

consumption advantages, there are benefits related to food production, including individual and community health, and community development potential.

CFPS provide improved capacity for the production of local produce such as leafy greens, which may improve nutritional security, and improve food-related health outcomes in the north (Fallovo et al., 2009; Loring & Gerlach, 2009). Opportunities for more flexible placement of CFPS in locations close to markets can optimize transport efficiency and reduce the time between harvest and consumption (Gómez et al., 2019; Newbean Capital, 2017). Additionally, these systems can be placed in areas with larger populations and a more accessible and available workforce. A larger population also enhances the potential for utilizing volunteers to reduce production costs and contribute to community development through expanded social networks (Lawson, 2005; Newbean Capital, 2017). While CEA and CFPS vary in complexity and the use of technology, automation is making the systems more user-friendly. These technological advancements allow for community development through increased employment opportunities and business ventures, even for those with limited or no horticultural experience (ColdAcre Food Systems, 2020; Newbean Capital, 2017).

Disadvantages

CEA and CFPS have limitations in their suitability to support crop production (Sardare & Admane, 2013). For optimum utilization of space in an enclosed environment, crops are grown vertically in several layers on shelves. Short-stature, fast-growing plants such as lettuce, leafy greens, and culinary herbs work best in these types of cropping systems. Crops requiring trellising or several months to harvest may be less cost-effective. The controlled sanitized environment of CFPS allows for effective pathogen and pest management. However, a breach allowing pathogen entry into a pest-free environment can result in significant and rapid crop failure (Raviv et al., 2019; Sardare & Admane, 2013).

The need for energy for heat and power is large in CFPS and greenhouses (Sambor et al., 2020). Given the current energy demands and issues in the north associated with so many remote communities being reliant on diesel generators, adding yet another energy burden to some communities may prove to be a significant barrier to successful adoption (Cherniak et al., 2015). Note, however, that there are ongoing debates about energy consumption and greenhouse gas emissions of local CFPS food production versus industrial agriculture. When the life cycle assessment (production, processing, distribution, and consumption) is considered, and when the sustainability of local production is compared to that of food imported from industrial operations, the entire life cycle of the food must be considered (Edwards-Jones et al., 2008). So far the general consensus is that sustainable food production systems are variable, but most effective when designed in place-based and culturally situated ways (Edwards-Jones et al., 2008; Gómez et al., 2019; Sambor et al., 2020).

For several decades there have been recurring discussions and concerns about CEA with respect to nitrate accumulation and potential health concerns (Sideman, 1999). Nitrate accumulation can be a risk for plants and particularly for leafy greens grown indoors, especially where light levels, nitrogen inputs, or crop storage are not managed appropriately. Nitrate levels exceeding the recommended limits can cause negative health outcomes related to gastrointestinal illness, oxygen transport in infants, and exposure to carcinogens in adults (Santamaria, 2006; Sideman, 1999). An increased accumulation of nitrate in leafy greens tends to be correlated with low light conditions. Earlier production efforts in indoor farming used fluorescent lighting rather than LEDs. With the new LED technology, light levels are now approaching or are similar to those found in a greenhouse or a field during summer conditions. Earlier reported findings of increased nitrate levels may therefore not apply or be accurate for current and more efficient indoor production approaches (Bian et al., 2020). On the other hand, poor management in any type of production system with excessively high or inappropriate fertilizer levels or inadequate climatic conditions can be expected to result in limited production and diminishing nutritional

quality resulting from excessively high levels of nitrate.

Social, Ecological and Economic Factors to Consider in Containerized Food Production System Projects

Containerized food production systems can improve the availability, access, variety, and quality of produce in northern regions; however, place-based social-ecological conditions affect the success or failure of a CEA system in each setting (Gómez et al., 2019; Mier y Terán Giménez Cacho et al., 2018). Exploring existing and past local food production systems such as community gardens may help with identifying factors and conditions for successful local food production, in both rural and urban cases (Lawson, 2005). Equally important, exploring local food production as an effective community response to change encourages a systems approach where social, environmental, and economic conditions interact with each other in effective and functional ways (Spring et al., 2019; Walker & Salt, 2006).

Social and Institutional Factors

The available research on the social, cultural, economic, and institutional constraints and opportunities for CFPS remains limited, but community gardening, greenhouses, and other local production systems provide details about the social and institutional conditions necessary for successful local food production initiatives (Gómez et al., 2019). Important factors in most cases include the extent of community interest in locally produced food, adequate ownership and/or leadership, education, policies that help rather than hinder (Loring et al., 2011), and strong social networks that foster cooperation and community engagement (Eyssartier et al., 2008; Lawson, 2005; Loring & Gerlach, 2010).

CFPS and other local food production initiatives require community support, interest, and engagement (Lawson, 2005). Support for local production often results from problems in the existing food system and/or changing social-ecological and climatic conditions, or, sometimes, land-use conflicts (Spring et al., 2019; Wesche & Chan, 2010). For example, northern communities have limited fresh produce options available, and this selection decreases during the winter. The produce available is often low in nutritional quality, in poor condition with respect to freshness and quality, and expensive (Loring & Gerlach, 2015). Urban communities may desire local production to decrease food mile vulnerabilities, but another commonly expressed interest in urban communities is the desire to reduce the environmental footprint of their food consumption (Eigenbrod & Gruda, 2015). Food security issues and environmental sustainability are often leveraged to foster interest and support in local food production (Eigenbrod & Gruda, 2015; Lawson, 2005; McKay, 2018). While local interest is essential for the success of CFPS, so too is effective leadership and ownership.

Effective leadership is necessary for both the implementation and long-term viability of CFPS. Throughout the history of community gardening, greenhouses, and other local food production strategies, leadership and ownership have come from NGOs, communities, private enterprise, and individuals; the role of government is sometimes effective, and sometimes not (Eyssartier et al., 2008; Gómez et al., 2019; Lawson, 2005). Regardless of who the owner is, committed leadership with the long-term interest and commitment, economic and cultural investment, and viable operations plans are required for the success of local food production (Lawson, 2005). Community gardens have been used in some rural northern settings for generations (Loring & Gerlach, 2010).

In some circumstances, community gardens have been developed in response to an immediate crisis, with the victory gardens during World War II but one example (Lawson, 2005). The gardens and garden programs that emerged were often implemented without long-term operations in mind and often ceased to exist following the crisis (Lawson, 2005). In other cases, local production from community gardens or greenhouses has been engrained in the community and culture across generations, resulting in both the practices and growing spaces thriving over multiple generations (Eyssartier et al., 2008; Loring & Gerlach, 2010). While local food production is enhanced through successful leadership, support from governments may help create conditions that encourage the systems to thrive.

Policy and governmental support are critical for CFPS and other local food production strategies. The global expansion of industrial agricultural and associated practices has resulted in policies that are best suited for large-scale farming systems (Blay-Palmer et al., 2020; Paredes et al., 2019). At a minimum, policy should not be a barrier to CFPS, and in the best circumstances, it should support and/or incentivize individuals or groups to adopt the technology where it is locally appropriate and desired. In 2015, the Milan Urban Food Policy Pact was ratified by mayors from all over the globe, and it explicitly acknowledges the importance that urban centers play in the food system and highlights the need for these centers to actively participate in and promote the transition to sustainable food systems (Blay-Palmer et al., 2020). Top-down endorsements such as this may help lay the foundation for local and regional policies that are supportive, but by themselves are not enough.

Strong social networks are critical for knowledge transmission, and for formal and informal education related to CFPS. Knowledge transmission is critical for success for multiple reasons, including skill development for those adopting new or existing horticultural practices (Eyssartier et al., 2008), as well as communications and education within a community (Coyle & Ellison, 2017). The community not only serves as a consumer but can be a champion to gain further support for the implementation of CEA (Parmentier, 2014).

Communication and education are important to most producers, although with hydroponically grown produce these may be essential for success. This is the case because some consumers have a limited understanding of the hydroponic growing process and are reluctant to purchase produce from these growing systems as some consider them to be "unnatural" (Coyle & Ellison, 2017; Gerlach et al., 2011).

Economic Factors

Economic research on CFPS is also limited, particularly in the context of rural systems and Indigenous communities (Gómez et al., 2019). However, there are some conditions that need to be addressed in most circumstances for successful implementation and operation.

First, there must be adequate funding in place to purchase and install the system, as well as to finance operations (Tokunaga et al., 2015). Secure operational financing is important, as the return on investment of CFPS is slow in many cases (Newbean Capital, 2017). There have been many different approaches to securing funding and launching CFPS systems, with private enterprise being very common, but another promising model is based on social enterprises (Gómez et al., 2019; Lawson, 2005).

Social enterprise models are generally less directly concerned with profitability and return on investment and thus can access diverse funding opportunities through schools, governments, and donors—opportunities that enhance the chances for success (Gómez et al., 2019; Reisman, 2012). As a social enterprise or community-based initiative, CFPS may be better situated to capitalize on the numerous successes that greenhouses and community gardens have experienced so far. These successes include operations that support education and research opportunities in the community, provide leisure activities for community members and volunteers, improve mental health and well-being for individuals, and help build stronger community ties (Gómez et al., 2019; Lawson, 2005; Reisman, 2012; Relf & Lohr, 2003).

Shifting the focus to operations that emphasize community development over profit not only gives CFPS a more diverse range of funding options, but also takes the pressure off system managers with respect to profitability and maximizing sales. While specific evidence of CFPS being used for community development is lacking, local food system development is a common strategy applied for community development. This may include farmers markets, community supported agriculture enterprises, urban farming and agriculture projects, and food hubs (Deller et al., 2017). Different models for CFPS applications should be explored to identify sustainable operations for northern communities that effectively balance community and economic development.

In many cases, locally grown produce such as those from CFPS and other CEA applications are more expensive than produce from industrial agriculture (Coyle & Ellison, 2017; Gómez et al.,

2019). This factor complicates the application of CFPS in northern communities, although in some cases even a more expensive locally sourced product is preferred to an imported product (Edward-Jones, 2008; Gómez et al., 2019). This preference can come from consumers' strong desire to support local production and consumption, a general interest in environmental sustainability, or the lack of other options (Gómez et al., 2019). In those cases where more expensive produce is not feasible for community members to obtain, not-for-profit social enterprise models or alternative community-driven approaches may develop solutions for CFPS applications that provide locally grown produce that is accessible to all in the community (Gomez et al., 2019; Moragues-Faus, 2019).

When applied in a northern urban setting, CFPS have unique opportunities due to the larger population base, such as partnering with restaurants where they can establish more financially sustainable operations (Gómez et al., 2019). Restaurant partnerships are less viable in rural communities with low populations and few to no commercial restaurants; however, in locations such as Northern Canada, Alaska, or even an island like Hawaii, where most of the food is imported and costs are high, there is an opportunity for CEA and CFPS to be competitive (Tokunaga et al., 2015). Ultimately, the place-based dynamics and community needs will dictate the economic conditions that will be most successful for the operation (Gómez et al., 2019; Tokunaga et al., 2015).

Environmental Factors

Given that CFPS and greenhouse internal production environments are buffered from the uncertainty of external environmental conditions, system operations may still be affected by external environmental conditions, such as extreme cold or heat influencing the ability to maintain appropriate internal temperature and humidity. The operation of these systems may in turn impact the environment by its footprint on the landscape and through waste products such as nutrient-heavy water, waste crop products, and emissions from diesel generators (Edwards-Jones et al., 2008; Raviv et al., 2019).

The literature relating to northern and cold-climate applications of CEA, and specifically CFPS systems, is still limited, and in some cases, cold climate applications in large urban environments in the northern U.S. such as New York and Boston, or urban centers in Northern Europe have received the most attention (Gentry, 2019; Goldstein et al., 2016). These systems and centers differ in both population demographics and environmental conditions from the northern communities in Canada and Alaska that we are specifically interested in here. However, with increasing interest in indoor and vertical farming across northern Canada, regional systems are now beginning operations (ColdAcre Food Systems, 2020; Gordon, 2021), and these may inform future research and application. Even with the limited data available now, there are a number of known conditions that need to be addressed for successful cold climate implementation.

Northern CFPS must be sufficiently durable to withstand extreme temperature and weather, while still maintaining stable internal temperature and environmental conditions for plant health and growth. Managing the temperature, ventilation, and dehumidification requirements of a system becomes more challenging in northern environments, with significant temperature differences between seasons, meaning that the system design must factor in a wide range of potential outside environmental conditions (Gómez et al., 2019; Raviv et al., 2019; Solvest Inc. & ColdAcre Food Systems, personal communication, 2019). Maintaining the heating and dehumidification requirements of CFPS in a northern climate requires access to adequate, consistent, reliable, and backup energy sources, as power failure may result in crop loss (Goldstein et al., 2016). The energy intensity of these systems raises questions about sustainability in the context of carbon emissions, particularly as there are still numerous communities in the north that rely on diesel generators (Cherniak et al., 2015; Coley et al., 2009).

While northern urban communities, along with many communities along main highway networks, are connected to the power grid, many remote communities are still completely reliant on diesel generators (Cherniak et al., 2015). This complicates CFPS applications as diesel is not only environmentally unsustainable but is also becoming

increasingly expensive to operate in remote northern communities (Cherniak et al., 2015).

This raises the question of integrating CFPS with alternative energy sources and developing microgrids to improve system sustainability, and for developing resilient communities. Various renewable energy sources are available, such as solar, wind, and hydropower, with some regions having geothermal potential; however, in most cases, a single renewable source is unlikely to meet all energy needs. This leads to the conclusion that in conjunction with a diversified food system, a complementary diversified energy system would be beneficial and is needed (Cherniak et al., 2015).

Containerized systems, while primarily closed, still generate waste in the form of crop residues and wastewater (Chiew et al., 2015). The waste is often safely discarded, although wastewater can have adverse environmental impacts, particularly at larger scales where it may accumulate, similarly to fertilizer runoff and eutrophication (Goldstein et al., 2016). While this waste product, like many other waste products, is perceived as a burden, there may be an opportunity for repurposing it, such as wastewater being utilized for liquid fertilizer in open field gardens or greenhouses, and waste plant material being composted (Chiew et al., 2015). Local communities need capacity, education, interest, and knowledge to manage these issues.

Major Challenges for Successful Containerized Hydroponic Food Production Systems in Northern Communities

Containerized production has the potential for improving food and nutritional security in the context of changing social-ecological systems, although there are a significant number of challenges and uncertainties facing its widespread adoption, which is why further work is needed. Improved growing protocols for a diverse range of culturally preferred crops, scalability, yield output, durability, and economics are some areas that need to be addressed (Gómez et al., 2019; Newbean Capital, 2017).

Growing Protocols

There are useful demonstrations of a wide range of crop production outputs in controlled environments, including but not limited to leafy greens, tomatoes, various berries, root crops such as potatoes and carrots, and medicinal plants (Asaduzzaman et al., 2013; Ritter et al., 2001; Treftz & Omaye, 2016). Growing protocols for many crops are still limited, particularly in soilless applications, and while produce such as potatoes and carrots can be grown hydroponically, the growth rate, nutritional value, or aesthetic quality may vary (Asaduzzaman et al., 2013; Ritter et al., 2001). Based on the authors' personal communications with hydroponic growers in Yukon, these crops can be grown, but it is difficult and the results are sometimes less than optimal due to small yields and inconsistent results (Solvest Inc. & ColdAcre Food Systems, personal communication, 2019).

Given the long history of gardening in northern Indigenous communities with an emphasis on root crops, coupled with the challenges of outdoor growing in northern climate and weather situations, there is still a preference for root crops, especially among Indigenous Elders (Loring & Gerlach 2010). Before CEA will be widely adopted and accepted, research identifying suitable growing techniques for these crops is needed.

Scalability and Outputs

Containerized systems are efficient in terms of crop yield per acre for some crops, like leafy greens, although scalability and produce output are still challenging. Every community's needs and expectations for food production from CFPS vary, in terms of both quantity and types of produce. To address these different local and regional expectations, applications of CFPS must be flexible and embrace customizable designs beyond traditional greenhouse and hydroponic production methods (Gómez et al., 2019; Newbean Capital, 2017).

The production outputs claimed in some literature (Coyle & Ellison, 2017) and industry reports (Newbean Capital, 2017) have been criticized for being overestimated and difficult to replicate as each system has different crop mixes, environmental conditions, scheduling, growing options, and production methods (Newbean Capital, 2017). Realistic output projections for real-world growing scenarios and protocols are necessary for communities and individuals looking to adopt CFPS as an effective response to social-ecological change.

Durability

CEA applications, specifically CFPS, face concerns about structure durability in northern and other harsh climates (Raviv et al., 2019). A strength of CFPS is the potential to reuse and repurpose existing structures such as shipping containers for environmental sustainability and cost-effectiveness (Newbean Capital, 2017). However, structure strength and stability may be a concern. In many circumstances, the reused structures have already experienced adverse weather conditions and deterioration. These issues confirm the validity of concerns about their long-term durability in rural cold climate conditions, particularly where many communities lack the capacity to repair these systems in the event of a failure. The travel and delivery of these repurposed units to remote communities may contribute to further deterioration (Newbean Capital, 2017; Raviv et al., 2019). Ultimately, any repurposed units require an extensive assessment to ensure structural integrity.

Economics

Research from the container farm industry has shown that less than half of CFPS are profitable (Newbean Capital, 2017). Some advocates state that the entry costs for CFPS can be relatively low (Newbean Capital, 2017), and this may be the case when compared to purchasing a conventional farm in many parts of the world. However, it is clear that fixed capital costs and ongoing maintenance and operational costs for northern communities may prove to be too expensive (Banerjee & Adenaeuer, 2014; Gómez et al., 2019; Newbean Capital, 2017). The financial challenges may also be compounded for northern remote locations due to increased delivery costs for the equipment and supplies (Newbean Capital, 2017; Tokunaga et al., 2015). This potentially poor economic outlook for CFPS strongly conditions the outlook for social enterprise and community-based business models, and for well-integrated and diversified approaches (Gómez et al., 2019). In addition to community development approaches, subsidies and grants may provide a feasible approach to CFPS projects in northern Canada where existing subsidy programs like Nutrition North exist, which subsidizes the cost of expensive imported food (Galloway, 2017); exploring the use of subsidies to increase local production may lead to a more sustainable approach.

Opportunities for Successful CFPS in Northern Communities

Situating CFPS within the context of effective community responses to change, combined with literature about successful community gardening and greenhouse initiatives, can provide useful insights into potential opportunities for CFPS to become more widely adopted and to have more consistent success. The two opportunities discussed below are related to integrative systems design solutions that include food production and energy and water systems, and an increased emphasis on the social-ecological network that encompasses food production. These opportunities are discussed in the context of a recently launched research experiment being conducted at the Kluane Lake Research Station, Yukon, Canada.

Kluane Lake Research Station: An Off-grid Containerized Food Production Experiment

The Kluane Lake Research Station (KLRS) in Southwest Yukon, Canada, is operated by the Arctic Institute of North America and is the home of a new fully funded off-grid containerized food production experiment. The authors are involved in the experiment, and we are working closely with a wide range of community members in Yukon on the project, including producers and consumers. The KLRS experiment serves as the basis for applied research on CEA applications in northern remote communities, may help to address some of the concerns related to CEA applications, and will provide communities with valuable information to make an informed decision about implementing a CEA or CFPS application. The community support received so far is for the experiment at the research station. As research results continue to come in, local communities will be in a better position to make their own evaluations about whether these systems are applicable for their community.

The purpose of this research is to provide communities across the north with relevant information to make informed decisions about the role these systems may or may not play in their community. While a research station is not a perfect proxy

for a rural community, it offers some similar conditions that a community would operate under, including remoteness and an off-grid power supply. Researching some of the community-specific conditions will be supported through further community engagement and with the support of the project's advisory board, which includes representatives from across Yukon, including but not limited to horticultural experts, container farmers, First Nations communities, urban and rural communities, and government agencies. Advisory board members were identified through existing relationships and partnerships with communities and community organizations around the Yukon.

This advisory board is responsible for helping guide the research on this project to ensure that experiments and research reflect the true wants and needs of the communities in the region. The community engagement aspects of the project include conducting surveys and interviews with communities in relation to CFPS, food distribution, and developing education and training materials for K-12 curriculum and employment purposes.

Ultimately, this experiment aims to develop knowledge and provide information so northern communities can make informed decisions about how and if CEA can support their community. In addition to the ongoing experiment, future research associated with this program includes a meta-analysis of CEA and CFPS literature that will serve as a follow-up to this nonsystematic review.

Integrated Systems Design

Integrating CFPS with other food production systems may help address real and perceived disadvantages, increase the likelihood of CFPS being successful for local and regional community lead food production, and hopefully improve food and nutritional security in remote and northern communities.

An integrated approach is being applied to the experiment at KLRS. In this experiment, a CFPS has been installed off-grid with solar energy and a battery bank for energy storage, with backup diesel power (Allford, 2017). The integration with renewable energy sources will help reduce power costs for the system, reduce overall diesel reliance, and improve the sustainability of CFPS (Cherniak et al., 2015; Sambor et al., 2020). The integration of energy and food systems is also being explored in Sweden, where researchers have explored the integration of vertical hydroponic systems and district heating applications in an urban setting (Gentry, 2019).

Beyond energy systems, there are opportunities to integrate CFPS with water systems. In the case of the KLRS experiment, a small-scale off-grid treatment system is being installed to treat wastewater at the research station. While this does not currently integrate with the CFPS, it supports resilient community design, and there may be future opportunities to better integrate the system components into a more functional whole. Additionally, there is evidence that exploring integrative and diversified approaches in one location improves efficiency and access to resources such as water and electricity and may lower overall costs for each system component (Davis et al., 2016).

Diversified food systems that include various local food production sources provide a more resilient and sustainable system that can more effectively meet food and nutrition requirements and have increased protection from food system failures or issues that occur in regional and global food systems (Blay-Palmer et al., 2020). Exploring the integration between and among various local food production systems may well improve overall local system operation. For example, wastewater from hydroponic systems can be repurposed as a liquid fertilizer for greenhouses or open field gardens, eliminating the need to dispose of the wastewater (Chiew et al., 2015). Additionally, soil-based production can help address challenges associated with CFPS related to a variety of crops that are not always grown successfully in controlled environments using hydroponic methods, such as carrots or potatoes. Successful integration across various systems will require multiple individuals to be involved and a full understanding of the social-ecological network that controls the local food system (Davis et al., 2016; Janssen et al., 2006).

Community Development and Social Networks in Diversified Local Food Production

The research program at KLRS is being completed

in close collaboration with a broad local community that includes producers and consumers in the region to not only ensure the success of this individual experiment, but also to develop protocols and strategies for successful applications across the region. Our emphasis is on finding the best way to develop a system that is most useful for remote communities. There is limited research on the social and institutional factors of CFPS, and the ability to effectively address food security and dietary-related health issues, particularly in the context of rural northern communities, remains a work in progress, recent criticism of the approach notwithstanding (Kozachenko, 2020).

Given the limited research, the concerns about the relevance or efficacy of CFPS in addressing food security and responding to social-ecological change in northern communities may be premature, particularly when it is understood that local food systems are place-based and contextual (Blay-Palmer et al., 2020; Loring & Gerlach, 2010). Based on this understanding, it is critical to not consider any food system in isolation from the larger food network or social-ecological system; rather this must be seen as a component that interacts with many other system components, including the relationship to local, regional, and global systems and their existing production and distribution networks.

Understanding that many successful community gardens and greenhouses have not been "silver bullet" solutions but are complementary components to an existing food system is paramount in reframing how CFPS is perceived in communities (Lawson, 2005). Emphasizing CFPS as a community-based initiative that is one component of a diverse food system that can support sustainable community development and effective responses to changing social-ecological dynamics may result in more successful applications of the technology (Blay-Palmer et al., 2020; Walker & Salt, 2006).

As with greenhouse and community gardens, CFPS can improve community support through educational initiatives for youth and adults, create a social and cultural hub through volunteering opportunities and community events, and engage individuals in agricultural and horticultural activities who would otherwise not have these opportunities (Gómez et al., 2019; Lawson, 2005). Achieving these outcomes requires perspectives that focus on the interwoven social-ecological network associated with local food production, instead of a myopic focus on the technology and a technological solution to what is fundamentally a cultural, social, and ecological problem (Janssen et al., 2006). One positive side effect is the building of strong networks within the community. This can create opportunities for further food system innovation through the integration of diverse knowledge sources, and for collaborative opportunities that can inform flexible, place-based, and integrative systems designed to meet local needs (Spring et al., 2019; Loring & Gerlach, 2010).

The new research program at KLRS involves collaboration that supports a better understanding of the dietary preferences of the region, along with the development of growing protocols and research output for selected produce. This collaboration should lead to a better understanding of the dynamic social-ecological network that affects local food production, building strategies for both understanding and navigating the system (Berkes et al., 2008).

A Final Note

Given the ongoing and projected challenges with existing food systems, change is needed at local, regional, and global scales to support diversified and resilient food systems that help rather than hinder food security and nutritional security (Spring et al., 2019). We note above that responding to these changes does not include developing "silver-bullet" solutions, but rather focusing on developing place-based strategies and responses that are flexible and diversified. Based on this, the claims that CFPS cannot and should not support food security in northern communities are premature and counter-productive. CFPS may fit into a diversified food system at local and regional scales, supporting improved food and nutritional security and complementing other system components by optimizing resource and infrastructure use, and by promoting local food production and community development.

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What do farmers bring to market? Exploring good types, number of vendors, and founding dates by SES and race/ethnicity

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Abstract

Farmers markets have been promoted as an avenue to improve access to food in neighborhoods that have been traditionally underserved by other outlets. Residents of these neighborhoods are encouraged to attend market sessions because the foods available are thought to increase access to foods that are healthier and of more variety. While previous studies have shown that farmers markets are choosing to locate in underserved areas, little research has examined how often this is occurring and what these markets offer to customers. Using survey data from 560 farmers markets across nine U.S. states and demographic data from the American Community Survey, this analysis contributes to this understanding by comparing and contrasting the founding years, number of vendors, and types of goods available at markets by neighborhood socio-economic status and racial/ethnic composition. Results show a more recent growth of farmers markets in low-income neighborhoods when compared to more affluent neighborhoods and a relative similarity of growth when looking at racial and ethnic composition. However, the types of goods available and number of vendors are significantly lower in low socio-economic status and high racial and ethnic minority neighborhoods when compared to more affluent and whiter neighborhoods. This suggests that there is continued and increasing farmers market presence in areas traditionally underrepresented, but that there is more work to be done to increase

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The data collection instruments and procedures utilized for the farmers market key agent survey were reviewed and approved by the Wheaton College (MA) Institutional Research Board. The authors declare no conflicts of interest associated with this research.

the number of vendors present and the diversity of offerings at these markets.

Keywords
Farmers Markets, Race and Ethnicity, Socio-Economic Status, Inequality, Food Access

Introduction and Literature Review

Issues of disproportionately low access to food in neighborhoods with high proportions of low-income and racial and ethnic minorities have been well documented (Eisenhauser, 2001; Jones & Bhatia, 2011; Larsen & Gilliland, 2009; Lowrey et al., 2016; Morland et al., 2002; United States Congress, 1992). Chief among these issues has been the diminishing access to affordable healthy foods, especially for children and those utilizing social support programs, and the documented loss of traditional food purchasing outlets, such as grocery stores (Freedman et al., 2018; Morales, 2011; Ogden et al., 2012; Slocum, 2007). Numerous organizational and policy initiatives have been proposed as solutions to fill this gap, including modifying food distribution systems and increasing and diversifying the outlets found in these neighborhoods (Markowitz, 2010; Wiskerke, 2009). Among the proposed solutions of increasing food purchasing points has been the development of direct producer-to-consumer markets (Feenstra, 2002; Hinrichs, 2000). Farmers markets have been suggested as a promising method of direct marketing to contribute to increasing food access (Gillespie et al., 2008). This promise is based upon farmers markets' documented ability to provide diversified and healthy foods options and the low start-up and operational costs needed for market sessions, compared to brick-and-mortar alternatives (Govindasamy et al., 1998; Leiper & Clarke-Sather, 2017; Schupp, 2017).

In absolute numbers, the number of farmers markets in the U.S. has increased significantly in recent decades (Archambault et al., 2020). For example, the number of markets registered in the U.S. Department of Agriculture (USDA) farmers market directory increased from about 2,000 in 1994 to more than 8,600 in 2019--a 330% increase in 25 years (USDA, n.d.-a, n.d.-b). In addition to fulfilling some demand for healthy foods, this growth has been attributed to farmers markets contributions to building stronger neighborhood communities and putting a larger proportion of food dollars into the pockets of farmers (Freedman et al., 2018; Hergesheimer & Kennedy Huddart, 2010; Hinrichs, 2000; Kirwan, 2004). During this time of unprecedented growth, research has looked into the attempts of farmers markets to spread to neighborhoods that have traditionally been underserved by food outlets, such as low-income and more racially and ethnically diverse neighborhoods (Dimitri et al., 2015; Evans et al., 2012; Jilcott Pitts et al., 2015; Lowery et al., 2016; Roubal et al., 2016). Results have been mixed, but the movement of farmers markets into these neighborhoods has been hailed as a victory by many, including residents, food justice proponents, and academics (Markowitz, 2010; Ruelas et al., 2012).

Although this increase in farmers markets may be a positive sign of progress, there are several gaps in our understanding of how farmers markets in these underrepresented neighborhoods compare to markets in traditionally served neighborhoods. Specifically, we do not have data on the number of farmers markets in these underserved neighborhoods, how long they have been operating, the number of vendors present on market days, and the diversity of goods for sale at these markets, beyond examining an individual farmers market or a cluster of markets within one city or county (Alkon, 2012; Lowery et al., 2016). Missing thus far is research that uses a sample that incorporates a variety of neighborhood demographic types and geographic areas. These are important facets to understand because the existing research has suggested that the length of time a market has been present in a neighborhood, the number of vendors present, and the diversity of goods for sale all significantly influence how well it can address consumer demand and issues of food access (Alkon & McCullen, 2011; Dimitri et al., 2015; Gillespie et al., 2007). According to the existing research, farmers markets with fewer vendors and offerings are unlikely to address food demand and food access in the same way that a market with many vendors and offerings can (Hergesheimer & Kennedy, 2010; Larsen & Gilliand, 2009; Lowerty et al., 2016).

This study explores this argument by examining the relationship between neighborhood demographics and the number of vendors present and types of goods available at farmers markets. The study collected data via surveys of key agents of farmers markets (n=561) in nine U.S. states and combined it with demographic data from the American Community Survey (ACS) at the census-tract level. Descriptive and bivariate statistics were performed to compare and contrast the number of vendors present at market day, the types of goods for sale, and founding dates of farmers markets by a neighborhood's socioeconomic status (SES) and racial/ethnic composition. The results suggest a continued and increasing farmers market presence in areas underrepresented by other outlets, but that the markets lack in their depth of vendors and robustness of types of goods when compared to neighborhoods that have traditionally hosted markets.

Applied Research Materials

An invitation to participate in an online survey was sent to key agents of farmers markets in Colorado, Connecticut, Iowa, Kentucky, Massachusetts, New Hampshire, Oregon, Rhode Island, and Vermont (N=1,026) via email beginning in the summer of 2018. The data were collected in two waves. The first wave included several states in the New England region, including Connecticut, Massachusetts, New Hampshire, Rhode Island, and Vermont. Given the robust response rate seen during the initial data collection and upon securing more funding, a second wave was sent to Iowa, Kentucky, Colorado, and Oregon. These states were selected to see if the results seen in the initial wave remained consistent in other parts of the U.S. The authors recognize that this sample is not representative of all of the U.S. and, as noted in the conclusion, the results of this work only directly apply to the states sampled.

The sample was built from the USDA Agricultural Marketing Service's National Farmers Market Directory available at the time of this research, lists of markets maintained by states and food organizations in the sample, and farmers markets found by the authors from internet searches. Multiple datasets were used to generate a more accurate and comprehensive sample of farmers markets than using one data source, especially given the known undercount by the USDA list because it relies on farmer markets self-reporting their existence. Farmers markets that appeared in more than one source were inspected for accuracy to see if the contact information was the same. If the contact(s) information was different, the survey was sent to the most up-to-date contact(s). An individual was considered to be a key agent if they were listed as the farmers market manager, a member of the board of directors, or if listed as the person to contact with questions about the market.

The survey was designed to collect information on several different themes about farmers markets, including market demographics, organizational strategy, financial health of the market, vendor type and prevalence, and types of goods sold. The survey consisted of 56 questions that inquired both about farmers markets generally and about the specific market that the individual was a key agent for. Utilizing Dillman's (1978) suggestions for effective survey design, non-respondents received up to four reminder emails over the course of a few weeks. Any remaining non-respondents were then sent a paper copy of the survey. Since there was a potential to hear from more than one agent of the market, anytime a key agent responded, the market was marked as being surveyed and all other key agents would not receive further reminders to take the survey. If an individual market responded more than once, each survey's answers were inspected for congruency. If answers differed significantly, the research team selected the survey that was categorized as the most reliable and comprehensive representation of the market.[1] The response rate over the course of data collection for the whole sample was 54.68% (n=561). Table 1 includes a breakdown of sample size and response rates by state.

Using previous work by Jilcott Pitts et al. (2015), Larsen and Gilliland (2009), and Lowery et

[1] Duplicate responses for a market occurred infrequently (less than 5% of the sample) and the information provided by the respondents only differed significantly a handful of times.

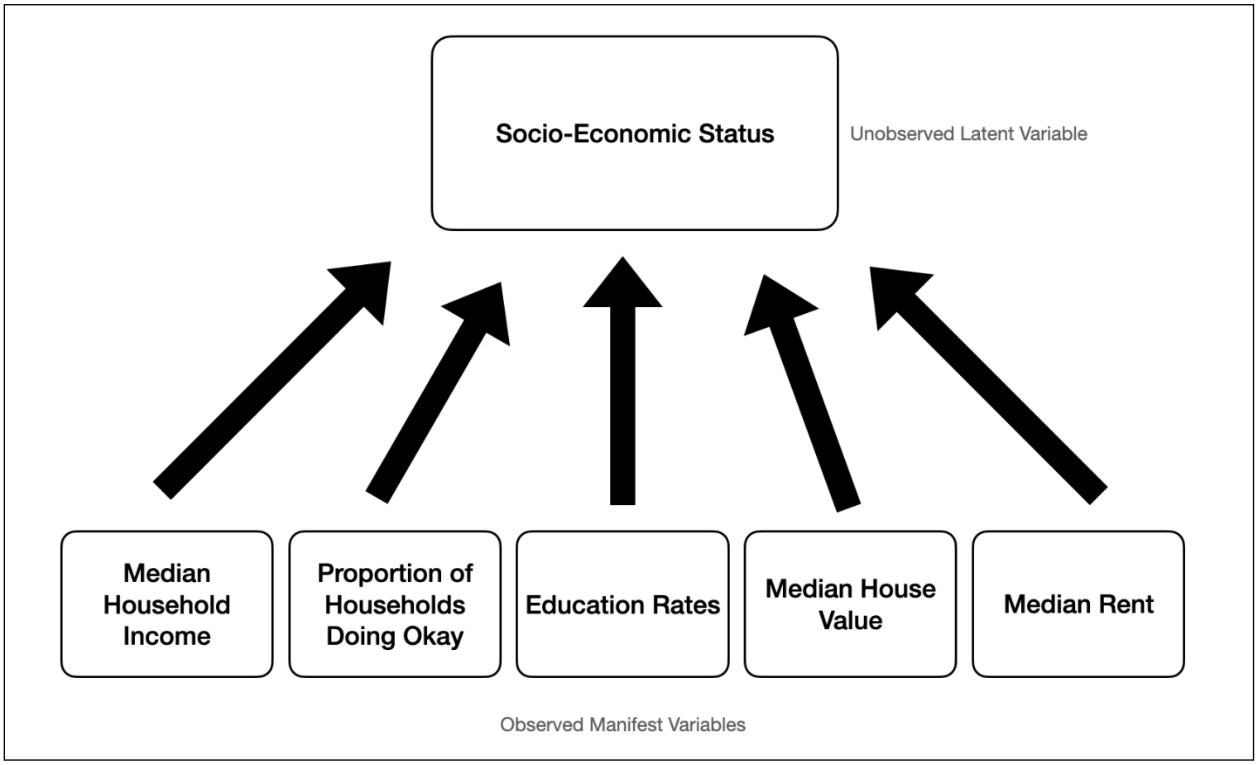
Table 1. Sample Sizes and Response Rates Information

State	# of Farmers Markets in State (i.e. Known Population)	# of Markets responding to survey (i.e. Study's sample)	Response Rate
Colorado	86	15	17.44%
Connecticut	125	76	60.80%
Iowa	155	97	62.58%
Kentucky	135	85	62.96%
Massachusetts	231	145	62.77%
New Hampshire	65	24	36.92%
Oregon	132	67	50.76%
Rhode Island	39	19	48.72%
Vermont	58	33	56.90%
Total	1,026	561	54.68%

al. (2016), the questions in the survey about types of goods available were crafted to assess the breadth and depth of goods available at the market: types of goods, number of vendors, and founding dates. The survey included questions that asked key agents to respond "yes" or "no" if any vendor sold any goods within that category at their market during the height of the selling season. For example, respondents were asked to select "yes" for the egg question if any type of egg (e.g. chicken, duck) was for sale at the market. There were 12 dichotomous questions in the survey that asked respondents about the following types of goods: fruits, vegetables, cheeses, meats, eggs, prepared goods, canned goods, mushrooms, flowers, plants, beverages, and "other," in case there were goods that did not fall into these categories. Respondents were asked if a type of good was available at the height of the selling season in an effort to standardize data collection. The researchers believed that the height of the selling season would be when the most goods would be available during a season. If a respondent noted that their market sold a particular type of good, it was coded 1; if not, it was coded 0. The scores for all 12 questions were then summarized. The scores ranged from 1 to 12 (mean 8.06/standard deviation 2.70). To assess the number of vendors at the market, respondents were asked how many vendors were present during the height of the selling season (mean 17.89/standard deviation 15.17). Answers from six respondents were removed from the analysis because the number of vendors at each were outliers (i.e., more than 5 standard deviations above the mean). Lastly, to assess the founding dates of farmers markets, the survey asked respondents for the year that the market came into existence. Since the study was interested in where recent markets emerged, markets that were founded within the past 5 years (2013–2018) were coded 1 to indicate they were recent and all others (2012 or earlier) were coded as 0.

Data from the ACS 2013-2017 five-year estimates at the census-tract level were used to approximate the boundaries of a neighborhood for the analysis. While there are many different conceptualizations in the literature as to how to measure a neighborhood, using census tracts as a proxy of a neighborhood has been shown to be an effective way to do this (Apparicio et al., 2007; Coulton et al., 2013; Hillier et al., 2011; Schupp, 2017). Two variables were created from the ACS. First, using factor analysis, an unobservable latent variable measuring SES was created from five observable manifest variables in the ACS. Figure 1 shows a visual representation of the construction of SES. Three of the manifest variables were median household income, median house value, and median rent. The ACS provided each in U.S. dollars. The fourth manifest variable, education rates, was created by aggregating individual scores within the neighborhood. Possible scores were 1 (did not graduate from high school), 2 (high school graduate), 3 (some college), and 4 (undergraduate degree and above). An average was calculated by taking the sum of all individual scores divided by the number of individuals in the neighborhood. The

Figure 1. Socio-Economic Status Variable Construction



outcome was used as the neighborhood education rate. The last manifest variable was the proportion of households "doing okay" according to the ACS income-to-poverty level ratio. The ACS categorizes U.S. households into one of three economic statuses based on a ratio calculated by a household's income to the poverty level for a given household size. Ratios under 1 categorized a household as "doing poorly," ratios from 1 to 1.99 categorized a household as "struggling," and ratios 2 and above categorized a household as "doing okay." To get the proportion used in the analysis, the number of households coded as "doing okay" was divided by the number of households in a neighborhood boundary. Both Cronbach's alpha (α=.8975) and principal component factor (eigenvalue 3.08) analyses showed a high interrelationship among the manifest variables, suggesting the suitability for combining them into one latent variable. Since the variable was created through factor analysis, the latent variable was standardized so that the mean was 0 and standard deviation was 1 to allow for easier interpretation of individual neighborhood scores. Presented in this way, individual scores for a neighborhood SES revealed how far away that case was from the mean in standard deviation units. For example, an individual score of +1.25 would mean that case was 1.25 standard deviations above the mean, whereas –1.25 would mean that the case was 1.25 below the mean. Four neighborhoods with markets were removed from the analysis because their SES scores were more than three standard deviations above the mean and were found to skew the data substantially.

The second variable created from the ACS measured one aspect of the racial and ethnic composition of a neighborhood. Since the literature has argued about the important role that whiteness plays in farmers markets, a variable that measured the proportion of people in a neighborhood that identified as white was created. To do this, the number of residents who identified as white was divided by the total number of residents in a given tract. The result gave us the proportion of self-identified white residents in a neighborhood. The researchers recognize there are limitations to this

conceptualization as it does not unpack the role that individual racial and ethnic identities play and instead focuses on the effect that average neighborhood whiteness plays on increasing or decreasing the types of goods available and the number of vendors present.

STATA version 14.2 was used to join the survey data with the ACS data. Since the study was unable to collect data from all of the known farmers markets in the nine states examined, the researchers assessed the generalizability of the farmers market sample data to the population of farmers markets. In particular, the researchers wanted to know if the neighborhood characteristics of the sample represented the neighborhood characteristics of the known population of farmers markets. To do this, an independent sample mean t-test was created to test if the sample mean differed from the population mean for all of the manifest variables included in the SES variable and the race and ethnicity variable. The results suggested that the sample data did not differ statistically from the population.2 As such, the sample data were considered representative of the demographics of neighborhoods known to have a farmers markets in the nine states surveyed.

Multiple descriptive statistics were calculated to compare and contrast markets by neighborhood SES and racial and ethnic composition, including the number of vendors present, the types of goods present, and founding dates. These analyses were performed separately for SES and racial and ethnic composition because of the aforementioned outliers and missing data in the survey. To assess if the types of goods or the number of vendors differed by SES and racial/ethnic composition, the neighborhoods were separated into deciles, meaning that the markets were separated into roughly 10 equally numbered groups by SES scores and then again by the proportion of white residents in a neighborhood. Deciles were used as a way to test and display the results in an efficient way. Deciles, similar and related to percentiles, group data into 10 equal groupings, meaning that the lowest decile (0–10%) contains the lowest one-tenth of all cases for a variable, whereas the highest decile (91–100%) contains the highest one-tenth of all cases for a variable. After separating the farmers markets into deciles, the average types of goods, average number of vendors, and percent of the newly established markets were calculated within each decile, so it could be compared to the overall sample and to the other deciles.

Several bivariate statistics were calculated to further compare and contrast the number of vendors and the types of goods by neighborhood SES and racial/ethnic composition scores. While descriptive statistics allowed us to visually inspect similarities and differences, bivariate statistics were calculated to understand if these differences were statistically significant. Four bivariate statistical tests were run. First, t-tests were performed to assess if farmers market neighborhood mean SES and mean racial/ethnic composition differed significantly from non-farmers market neighborhood mean and from the states as a whole mean. Second, Pearson chi-squared tests were run to assess if the decile means of a type of goods available differed statistically from one another for both SES and racial/ethnic composition. Statistical significance in these tests would suggest that there is an association between the two variables; however, it does not suggest a direction or strength of this association. Third, analysis of variance (ANOVA) tests were run within the SES deciles and racial/ethnic composition deciles to see if the variation of the number of vendors present differed significantly. A statically significant result would suggest the explanatory variables (SES or racial/ethnic composition) influence the response variable (number of vendors or the types of goods). However, a statistically significant result for this test does not indicate the direction of that effect. Last, any test outcome found to be statistically significant in the first three tests was run through bivariate regression tests run to see how the explanatory variables affect the response variables to ascertain information about the strength and direction of these relationships. To show the effect and strength of these associations, a scatterplot with a fitted regression line was constructed to visualize the prediction for the

[2] The researchers do not provide the results of these tests here, but would be happy to provide them upon request.

response variables on top of the data collected for this study.

Results

Two interesting patterns were found in the data. First, the analysis shows that the growth in farmers markets over the last five years has concentrated in neighborhoods with lower-than-average SES, whereas the growth of farmers markets was found to be more dispersed across neighborhood race and ethnicity. Second, the analysis found SES and the number of white residents in the neighborhood to be positively associated with the types of goods available for sale. The results also show a positive association between both SES and the number of white residents in the neighborhood and the number of vendors present.

Population and Neighborhood Demographics

Table 2 shows descriptive statistics for nine of the variables of interest at the population level and by if a farmers market is located in the neighborhood or not. In looking at SES, the table shows that neighborhoods with farmers markets had slightly lower SES scores (–.147/1.01) than the states as a whole (0/1). SES in neighborhoods without farmers markets (.013/.99) were also slightly higher than both farmers market neighborhoods and the states as a whole. Table 2 also shows that farmers market neighborhoods were found to have lower means on all five variables used to construct SES when compared to both non-farmers market and state means. When looking at the proportion of white residents in a neighborhood, Table 2 shows the population average/standard deviation to be .84/.17. Farmers market neighborhoods were found to have slightly more white residents on average (.86/.15), and non-farmers market neighborhoods were found to have slightly fewer white residents on average (.83/.17) when compared to the state mean. Collectively these two results show that farmers market neighborhoods tend to be slightly less affluent than neighborhoods without farmers markets, yet they tend to have slightly higher proportions of white residents.

Table 2 also shows the results of the t-tests described above that compared SES and the proportion of white residents by farmers market status and the entire population. The second column from the right shows the results of t-tests between the mean of farmers market neighborhoods to the mean of the population. The last column on the right shows the results of the t-test between the mean of farmers market neighborhoods and the mean of non-farmers market neighborhoods. The results in Table 2 show that farmers market neighborhoods have significantly lower SES scores, but a significantly higher proportion of white residents

Table 2. Descriptive Statistics for Population and Neighborhoods With and Without Farmers Markets

	All 9 states (mean/standard deviation)	Neighborhoods with FM (mean/standard deviation)	Neighborhoods without FM (mean/standard deviation)	t-test population vs. FM	t-test FM vs. non-FM neighborhoods
Socio-eeconomic Status	0/1	–.147/1.01	.013/.99	12.23***	–3.47***
Median Household Income (US$)	66191/ 31175	60352/ 30682	66693/ 31168		
Average Education	2.85/.43	2.82/.42	2.85/.43		
Median House Value (US$)	264239/ 183200	256544/ 203133	264900/ 181387		
Median Rent (US$)	1054/413	952/352.02	1062/417		
Proportion Doing Okay	.70/.17	.67/.17	.70/.17		
Proportion White Residents	.84/.17	.86/.15	.83/.17	–9.47***	4.93***
Types of Goods		8.01/2.7			
Number of Vendors		17.89/15.18			

Note: *p*-value: * <.05, ** <.01, *** <.001

when compared to both the entire population and to non-farmers market neighborhoods at the .001 significance level.

Effect of SES and Proportion of White Residents in Neighborhood on Types of Goods and Number of Vendors

Table 3 shows descriptive statistics of the mean types of goods and mean number of vendors by SES neighborhood deciles and by the proportion of white residents in neighborhood deciles. Results in Table 3 show a positive relationship between the mean types of goods by both SES decile and proportion of white residents decile. Though the mean types of goods ebb and flow somewhat, the overall trend is that as SES and proportion of white residents deciles increase, so do the mean types of goods. Pearson chi-squared tests show the relationship to be statistically significant for both SES ($p<0.001$) and the proportion of white residents in a neighborhood ($p<0.01$). Table 3 shows similar results when considering the mean number of vendors. The mean number of vendors trends upward as both SES decile and proportion of white residents decile increase. Results of the ANOVA tests show the relationship to be statistically significant between SES and vendors ($p<0.001$), although not between the proportion of white residents and vendors. Collectively, this suggests that as SES and the number of white residents increases in a neighborhood, so do the types of goods for sale and the number of vendors at a farmers market.

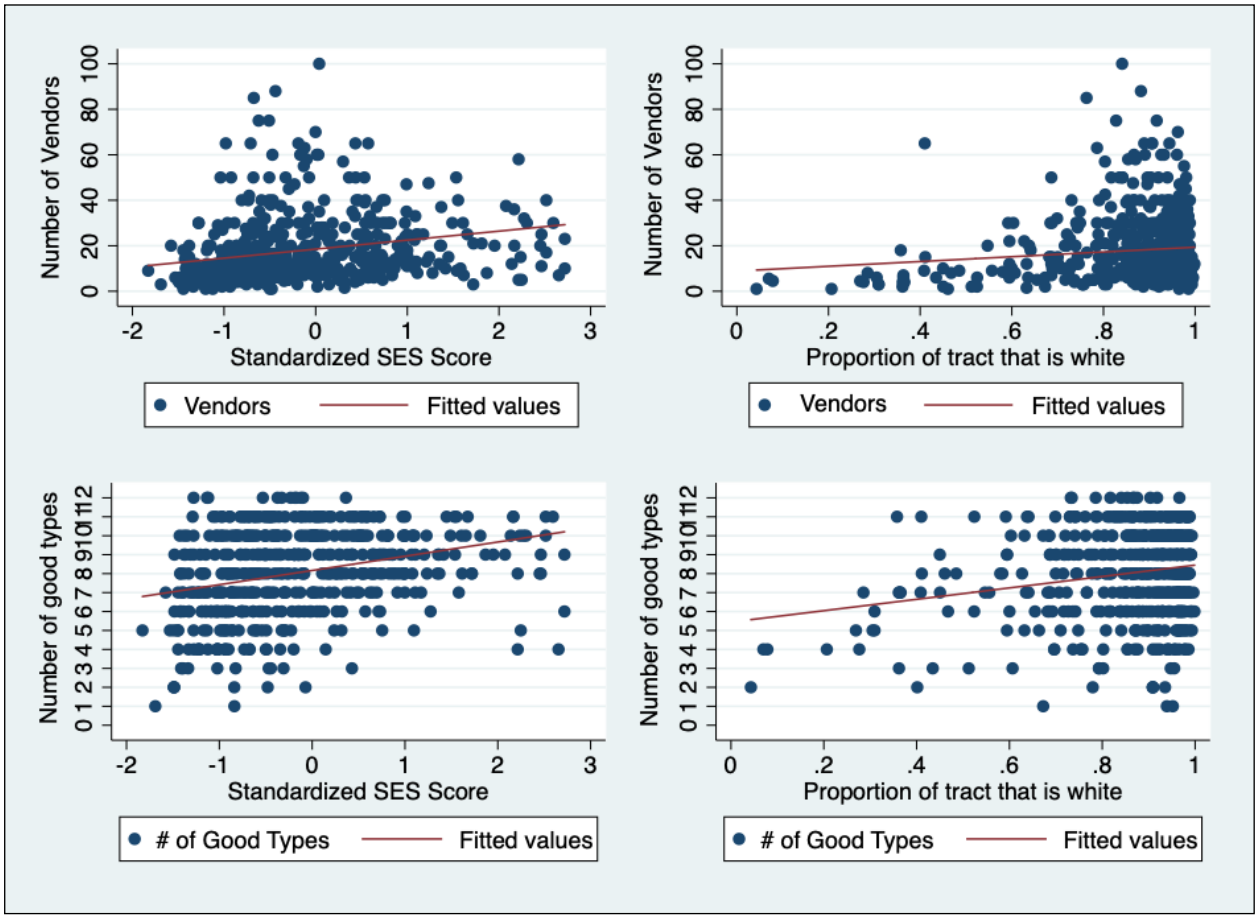
Figure 2 presents scatterplots with regressions lines to illustrate the direction and strength of association between the independent variables (SES and proportion of white residents in each neighborhood) and the dependent variables (types of goods and number of vendors). The four scatterplots show positive relationships between their respective variables. Additionally, the regression coefficients, found in the second to last row of Table 3, for mean types of goods and SES ($\beta=.25$)

Table 3. Descriptive and Bivariate Statistics of Mean Types of Goods and Vendors by SES of Neighborhoods and Proportion of White Residents in Neighborhoods

	Socio-economic Status Deciles			Proportion of White Residents in Neighborhood Deciles		
	Mean Types of Goods	Mean Number of Vendors	% Newly Established Markets (n=119)	Mean Types of Goods	Mean Number of Vendors	% Newly Established Markets (n=140)
Sample Size	549	517	493	561	529	504
Sample Mean/Total	7.86	17.75		7.85	17.89	
Sample Deciles						
0–10%	6.58	9.35	19.33	6.34	9.79	9.02
11–20%	6.75	12.18	10.92	7.98	16.97	12.30
21–30%	7.81	19.68	6.72	7.57	19.15	11.48
31–40%	7.84	19.15	17.65	8.62	24.52	7.38
41–50%	8.20	18.90	7.56	8.26	21.14	10.66
51–60%	8.31	19.59	6.72	7.62	18.11	7.38
61–70%	8.44	19.41	7.56	7.90	18.70	3.28
71–80%	8.98	23.78	8.40	7.51	16.49	9.84
81–90%	8.40	19.79	8.40	8.13	16.97	14.75
91–100%	8.75	22.03	6.72	8.03	15.62	13.93
Pearson Chi2	170.61***		45.87***	137.80**		22.47
ANOVA		5.78***			2.99*	
Bivariate Regression Coefficient (95 CI)	0.25*** (.18 - .32)	1.26*** (.84- 1.68)		2.71*** (1.35 - 4.07)	10.64* (2.51 - 18.76)	

Note: p-value: *<.05, **<.01, ***<.001

Figure 2. Scatterplots of Types of Goods/Number of Vendors by Socioeconomic Status of/Proportion of White Residents in Neighborhood



and for the proportion of white residents (β=2.71) were both found to be statistically significant at the .001 level. Table 3 also shows the relationships between SES and the proportion of white residents with the mean number of vendors. Regression coefficients were found to be statistically significant, where SES (β=1.26) was at the .001 level and the proportion of white residents (β=10.64) was at the .05 level.

Newly Established Markets

The fourth and seventh columns of Table 3 show the total number of newly established markets and the percentage of newly established markets by decile. In total, 24.23% of markets (n=119) were found to be newly established when analyzing the markets by the SES variable, whereas 27.78% of markets (n=140) were newly established when analyzing by the race and ethnicity variable.3 Overall, the results in Table 3 show that newly established markets are disproportionately located in the lowest SES deciles. For example, of the markets founded in the last five years, 63.86% were in the bottom five deciles, including 19.33% in the first decile. In contrast, in looking at the proportion of white residents in neighborhood deciles, Table 3 shows a more variable distribution when compared to SES. Table 3 shows a large growth in some of the lowest deciles (12.30% in the second decline and 11.48% in the third); however, it also shows a sizable percentage of newly formed markets in the top two deciles of white residents in the neighbor-

[3] Differences in sample sizes were because of previously mentioned outliers and missing data in the survey data.

hood (14.75% in the ninth decile and 13.93% in the tenth decile).

Discussion and Conclusion

The desire to increase access to healthy and affordable foods in underserved neighborhoods has attracted many solutions, including a variety of direct-marketing methods, such as the farmers market. While research has found that farmers markets are increasingly located in these areas, there has been a gap in examining the frequency of occurrence and, importantly, the number of vendors present and the range of goods sold. This analysis contributes to the literature by comparing and contrasting founding years, the number of vendors, and the types of goods available at markets by neighborhood SES and racial/ethnic composition. The results demonstrated that farmers markets are indeed present in neighborhoods with low SES and neighborhoods with high racial and ethnic proportions and, in fact, have experienced a disproportionately higher rate of growth in farmers markets over the last five years. However, this study also shows that the markets in these neighborhoods have significantly fewer vendors and types of goods available for purchase.

There are some limitations to this research. First, this study, though based on a large sample size, is limited in that it is cross-sectional data from nine states in the U.S. The results presented only apply directly to the states in the sample, moderately to the New England region, and at best generally to the U.S. Specifically, the researchers recognize that the nine states in this study tend to be those that are whiter than average when compared to the rest of the U.S. (United States Census Bureau, 2021). Future work that explores other parts of the U.S. could examine whether the results seen here remain consistent or reveal different trends not seen in this sample. The researchers believe that there are likely important variations between this sample and the states not included in this study that could be the focus of future research and could continue to further develop our understanding. Second, the researchers also note the surprising finding in the univariate analysis that farmers market neighborhoods were whiter yet less affluent (see Table 2). This was an unexpected finding considering the overwhelming evidence in other work that shows farmers markets being both whiter and more affluent on average. Even so, the bivariate analysis showed that the types of goods and vendors increase significantly as whiteness and affluence increased. Viewed collectively, the researchers believe that these results are similar to the preceding work in the farmers market literature. Third, the researchers recognize that our conceptualization of how to put boundaries around a neighborhood and how to measure types of goods are methodological choices that have benefits and drawbacks. The researchers contend that the benefits outweigh the drawbacks, but do not claim that this is the only way to measure a "neighborhood" and that our artificial conceptualization certainly missed out on some of the complexity and variation of this social phenomenon. Future research could further this conversation by using other conceptualizations of a neighborhood. Additionally, future research that addresses the quantity of goods within our types of goods could prove an important facet while considering food access.

Even with these data and methodological limitations in mind, this research does suggest that proponents of increasing food access through farmers markets in neighborhoods with low incomes and high racial and ethnic concentrations could celebrate some success. The results showed that farmers markets are indeed disproportionately locating new outlets in areas that have traditionally been found to be underserved by conventional food outlets, such as grocery stores, and increasingly reliant on outlets that tend to have less healthy food options, such as convenience stores (Eisenhauser 2001). However, as suggested by the results shown in Table 2, it is also important to recognize that these markets are not as well attended by vendors and that customers have fewer types of goods to pick from when compared to markets in more affluent and whiter neighborhoods.

Because this research did not explicitly explore the mechanisms that cause fewer goods and vendors, understanding why this is the case is a fruitful avenue of future research. The work of Alkon and McCullen (2011), DeLind (2011), Guthman (2011), and Slocum (2007) may prove insightful in identifying areas that one could begin to explore. In partic-

ular, this work highlights the tendency of emerging direct food marketing to build, implement, and maintain, whether consciously or not, narratives that prioritize white and affluent privileges. These researchers highlight this as problematic because this contributes to an inflexible understanding of how to "correctly" accomplish direct marketing and direct-to-consumer sales. Given the results of this study, one is left considering that perhaps inflexible models of "how" to "best" run a farmers market may be causing issues of efficacy to emerge in spaces that have not up to this point traditionally hosted farmers markets. Both examining and encouraging farmers markets that prioritize the neighborhood's input and engagement may be of future research interest and practice based on the results of this study. While this research was able to ascertain when a farmers market was founded, who found these markets is an important question that remains. Based on these results it would be worthwhile to explore what individuals or entities are working toward bringing farmers markets to neighborhoods of color or neighborhoods with low SES. For example, Roubal and Morales (2016) found that the city of Chicago played an instrumental role in facilitating farmers markets' ability to increase access to healthy food in communities of color.

Lastly, likely contributing to these results are the decision-making processes of the vendors as they decide which markets to participate in. Vendors, unless provided some incentive, could be less motivated to participate in markets that have, on average, a less affluent customer base in the case of low-income neighborhoods or that are in areas that have been shown to have issues in hosting successful markets, as in the case of high racial and ethnic minority neighborhoods (Dimitri et al., 2015; Evans et al., 2012; Jilcott Pitts et al., 2015; Jones & Bhatia, 2011). This should not dissuade others from continuing to develop direct-marketing outlets in these areas, but these concerns should give those doing this work a moment of pause to consider how to best engage community members while developing markets and incentivizing producer participation.

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Models for cost-offset community supported agriculture (CO-CSA) programs

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Abstract

Cost-offset community supported agriculture (CO-CSA) appears to be a promising way to increase low-income households' access and intake of fresh produce, while also helping CSA farms expand their farm business. Yet single farms operating CO-CSAs may struggle to balance the demands of farming with CO-CSA program administration,

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funding, and recruitment. To address these challenges, CO-CSA programs operated by nonprofits have emerged, equipped with dedicated infrastructure, resources, and staffing. This study aims to describe organizational models and best practices of nonprofit CO-CSA programs, using a qualitative approach. We conducted interviews with five well-established nonprofit CO-CSA programs in the U.S. Administration of these five nonprofit CO-CSAs took several forms: (1) providing direct subsidies to individual CO-CSA member farms; (2) functioning themselves as an aggregator, packer, and distributor of regional produce; and (3) sourcing from an in-house farm incubator or food hub, then packing and coordinating delivery to pick-up sites. Nonprofit CO-CSA funding strategies included grants from federal and local government sources, private donations, fundraising, and grants. Marketing efforts occurred via social media, community events, and word of mouth. Both fundraising and recruitment were greatly facilitated by relationships with community partners. Having dedicated staff, as well as a community that values local agriculture and social justice, were identified as success factors. This descriptive, qualitative study systematically compares the attributes of five nonprofit CO-CSA programs. Future research should focus on identifying the cost-effectiveness of nonprofit CO-CSAs, compare the relative merits of single-farm and nonprofit CO-CSAs, and quantify the economic benefit of CO-CSA programs for farmers and local communities.

Keywords
Cost-Offset CSA, Entrepreneurship, Community Supported Agriculture, Supplemental Nutrition Assistance Program, Subsidized Direct-to-Consumer

Introduction

Adequate fruit and vegetable (FV) intake, necessary for optimum health and lower risk of chronic disease (Aune et al., 2017; Carter et al., 2010; Wang et al., 2014), continues to be problematic in the United States (Krebs-Smith et al., 2010; Moore et al., 2015; Wilson et al., 2016). Those with lower incomes, who often reside in areas with limited access to produce, have a disproportionately lower prevalence of adequate FV consumption (Grimm et al., 2012; Kamphuis et al., 2006). To increase FV consumption and boost farm revenue, the U.S. Department of Agriculture (USDA) provides grant funding to promote sales of locally grown foods at direct-to-consumer (DTC) venues (USDA, 2016). Although this approach has demonstrated some success (Allen et al.,2017; Minaker et al., 2014; Vasquez et al., 2016), disparities in access and financial resources put DTC venues out of reach for many low-income households (LIHH) (Galt et al., 2017; Vasquez et al., 2017). Both the acceptance of Supplemental Nutrition Assistance Program (SNAP) benefits at DTC venues, and programs that provide a dollar match when SNAP benefits are used, help reduce financial barriers for low-income consumers and improve FV intake (Dimitri et al., 2015; Durward et al., 2019; Olsho et al., 2015; Young et al., 2013).

For community supported agriculture (CSA), a DTC model in which consumers pay for a "share" of a local farm's crops at the beginning of the season in return for a weekly (or biweekly) portion of the harvest, farms offer additional ways to reduce financial barriers. These include payment plans, working shares, low-cost shares, transportation assistance, bartering, and cost-offset programs (Forbes & Harmon, 2008). In a cost-offset CSA (CO-CSA), low-income subscribers pay a portion of the cost in installments throughout the harvest season, with the remainder paid through other funding sources at the beginning of the season (Sitaker et al., 2020a).

The CO-CSA appears to be an appealing strategy for farmers who want their CSA to be accessible to consumers of all income levels (Calancie et al., 2015; Khan et al., 2009; Seguin-Fowler et al., 2020). In California, 25% of farms said they used strategies to address the financial constraints of LIHH, including CO-CSAs that were funded through donations (25%), sliding scale (8.3%), fundraising (5.6%), or workshares (5.6%) (Guthman et al., 2006). A recent national survey of CSA managers found that 14.4% of 495 farms interviewed nationwide had cost-offset voucher programs for LIHH; an additional 67.7% expressed interest in coordinating with other pro-

ducers to adopt a similar program (Woods, Ernst & Tropp, 2017). Several toolkits have been developed with advice on how to start or run CO-CSA programs for LIHH (Sitaker et al., 2020b).

Like other programs that promote locally grown foods, CO-CSAs have the potential to tap into a new market segment, thus expanding CSA farms' customer base at a time when DTC growth has plateaued (Low & Vogel, 2011; Sitaker et al., 2019; 2020a). The financial benefits of the CO-CSA model for farmers have yet to be quantified; only one study has documented start-up costs and potential profitability of a CO-CSA in quantitative terms (Cohen & Derryk, 2011). However, other studies have described benefits that are nonmonetary, as well as those that could be considered as precursors to increased farm revenue. For example, many farmers reported that offering a CO-CSA helped them meet the social justice component of their mission, expand their membership, and add to farm income (Abbott, 2014; Andreatta et al., 2008; Cohen & Derryk, 2011, Seguin-Fowler et al., 2020; Sitaker et al., 2020a; 2020b). However, some were challenged by the time it took to collect and record weekly payments and follow up on missed payments and pick-ups (Hoffman et al., 2012; Sitaker et al., 2020a, 2020b). Additionally, many independent farms wanting to start a CO-CSA, or continue one after study funding ended, expressed concerns about the time, labor, and skill it would require to raise funds, recruit low-income members, and administer the CO-CSA going forward (Quandt et al., 2013; Sitaker et al., 2020b).

CO-CSA programs operated by nonprofits are positioned to address these challenges in several ways. While single-farm CO-CSAs may experience conflicts between the demands of farming and program administration, nonprofit CO-CSAs have the advantage of organizational infrastructure and dedicated staff who have expertise in fundraising, program management, and marketing (Cohen & Derryk, 2011; Woods et al., 2017). They have the bandwidth to develop the necessary community partnerships for outreach to LIHH and help with ancillary nutrition education programming (Cohen & Derryk, 2011). Further, nonprofit CO-CSAs may be sourced by multiple farms or by one or more food hubs, thereby allowing the program to serve more LIHH in a wider geographic area (Sitaker et al., 2020c).

CO-CSAs are a promising strategy for increasing LIHH's FV intake (Seguin-Fowler et al., 2020), yet single farms might find it challenging to operate a CO-CSA on their own. Nonprofits with dedicated staff and resources to run the program may be better positioned to handle the challenges that single-farm CO-CSAs face in finding funding, recruiting, and administering the program. Yet, to date, only two studies have reported on the organizational characteristics of long-standing CO-CSAs operated by nonprofits: Corbin Hill Road (Cohen & Derryk, 2011) and Fair Share (Woods et al., 2017). This study systematically explores the various ways that nonprofit CO-CSAs are structured and identifies their preferred practices for CO-CSA administration, financial operations, logistics, partnership development, and marketing. We conducted interviews with directors and managers of five nonprofit organizations that operate CO-CSAs in geographically diverse parts of the U.S. Findings from this study may prove useful for researchers interested in conducting further research on CO-CSAs, as well as farmers, nonprofits, and policymakers interested in starting or supporting a nonprofit CO-CSA in their community.

Methods

In 2019, we conducted five semi-structured interviews with nonprofit organizations that operated CO-CSA programs, using a structured interview guide (Appendix A) that included the following topics: organizational description, CO-CSA operations, cost-offset and other accommodations, funding sources, marketing, and logistics. From a compiled list of CO-CSAs (Sitaker et al., 2020c), we purposively selected five nonprofit organizations from three out of four regions of the U.S. that had been in operation for at least 4 years and had diverse operating models. Two of these well-established programs had previously been featured in published studies and were included so that we could compare consistent, updated information across all five nonprofit organizations. Another one of the five CO-CSA programs was no longer active, but was included because it featured a unique network of community partnerships. We

sent an email invitation to either the director or manager of each CO-CSA program, describing the purpose of the study, the interview format, and the discussion topics. All five agreed to participate and, subsequently, one-hour telephone interviews took place in February and March 2019. Each nonprofit was compensated US$50. The study protocol was approved by the institutional review boards at the University of Vermont (protocol ID # 180204) and Cornell University (protocol ID #1501005266) and informed consent was obtained verbally prior to data collection.

The semi-structured interviews were recorded, transcribed verbatim, and imported into NVivo version 11 (QSR International). Three analysts (M.S., W.W., and M.V.) met to review one transcript and develop initial themes and subthemes across all question categories. One analyst (M.V.) then coded a second transcript, which was reviewed and discussed with the two other analysts. Once consensus was reached, a codebook was generated and used to guide the coding of the remaining interviews. Once all five interviews had been coded (by M.V.), a second analyst (M.S.) double-coded three transcripts, and both analysts met to discuss and resolve discrepancies.

Qualitative findings were grouped into the following general categories: (a) organizational description, (b) CO-CSA operational structure, (c) cost-offset and other accommodations, (d) funding sources, (e) outreach and marketing, and (f) logistics, payments, and pick-ups. We describe the role of community partners with regard to CO-CSA funding and marketing efforts. We also report on the facilitators and challenges of operating a CO-CSA program that were identified by nonprofits and their advice for starting a CO-CSA program.

Results

Organization Description

All five CO-CSAs in this study were programs of nonprofit organizations that aim to create a just and equitable food system and address food inequities and gaps in their local food economies. Each organization used a variety of strategies to accomplish its mission in addition to the CO-CSA.

Nonprofit A (New York), created in 2009, is a social enterprise dedicated to supplying "fresh food to those who need it most." This is achieved primarily through wholesale produce delivery and the CO-CSA program started in 2018. Produce is sourced from four major food hubs that work with around 200 growers. In addition to affordable prices, Nonprofit A offers flexible sign-up and payment options.

Nonprofit B (Maine) began as a training farm in 2001, providing income and skills development to help growers become independent farmers. Produce grown by trainees is distributed through the CO-CSA by the nonprofit's food hub, which began in 2010. The food hub also sells through wholesale channels and raises funds to buy farmers' leftover end-of-season crops for donation to food pantries. Nonprofit B operates a youth leadership program in which high school students can learn about food systems and participate in various urban farming and cooking projects. It also offers youth programming in school classrooms and works with school gardens in the Portland area.

Nonprofit C (Wisconsin) was created in 1992 to connect people with local farms. Nonprofit C offers farmer training and education on such topics as marketing and promotional support, on-site CSA support, and CSA promotion. Its CO-CSA program, sourced by farms in the Nonprofit C coalition, has been working to make it easier for LIHH to purchase a CSA since 1996.

Nonprofit D (California) is an urban organization founded in 2007 focused on equity and racial justice that seeks to improve health and employment opportunities in low-income communities of color. It does this by distributing produce, creating edible parks and plazas, holding youth and community education programs, and fostering small food-business incubation. Nonprofit D offers a kitchen incubator program, youth entrepreneurship programs, and youth gardening and fellowship programs. Its CO-CSA program, in operation since 2009, features produce sourced through Nonprofit D's food hub.

Nonprofit E (Massachusetts), started in 1991, is a youth development organization focused on food production and distribution that provides support for gardening, community organizing, and food system planning. Nonprofit E employed 25

full-time staff, with additional help from over 100 youth employees and 2,000 volunteers. It operated five farms that produce over 250,000 pounds (113,000 kg) of chemical- and pesticide-free food each season for a charitable donation, cost-offset sale at farmers markets, and youth-driven food enterprises. Nonprofit E's CO-CSA program was in operation from 2012 to 2015.

CO-CSA Operations and Logistics

Nonprofit directors and managers described various structures in characterizing their CO-CSA program: providing direct subsidies to individual member farms for their CO-CSA programs (Nonprofit C); purchasing food from multiple food hubs and arranging deliveries to pick-up sites where members pack their own boxes (Nonprofit A); functioning as a food hub that aggregates food from multiple independent farms, then packs and delivers CO-CSA shares to pick-up sites (Nonprofit D); and sourcing from farming projects within the organization, and packing and coordinating delivery to CO-CSA pick-up sites (Nonprofit B and Nonprofit E). Table B1 in Appendix B provides detailed information on the logistical arrangements for each nonprofit.

Almost every manager or director expressed appreciation for the important role played by CO-CSA pick-up site hosts, which included community volunteers (Nonprofit D), an apartment complex (Nonprofit B), and Head Start centers (Nonprofit E). For Nonprofit E, Head Start also facilitated recruitment and enrollment.

Membership Size, Subsidies, and Accommodations

The number of cost-offset shares provided in 2018 ranged from 43 to 1,065 (Table 1). Between 2012 and 2015, Nonprofit E said its CO-CSA had "high turnover," with shareholders dropping out in the middle of the season. However, drop-outs were replaced with other LIHH that had signed up to a waitlist, so there was no net loss of customers. Nonprofit D reported a high rate of CO-CSA retention (75%), while nonprofits B and C reported lower retention rates (50% and 30%–50%, respectively).

CO-CSA subsidies ranged from 40% to 100% of the market share price (Table 1), with some offering multiple cost-offset levels, depending on need. For example, Nonprofit B offered a free share (100% cost-offset) to 28 asylum-seekers. Nonprofit A offered a US$10/week share to 83 SNAP-EBT users, while 42 other individuals paid US$20/week for a "social impact share," which allowed Nonprofit A to offer more lower-cost shares. Since the production costs for these shares were between US$25 and US$35, Nonprofit A cost-offset all shares internally to some degree.

Most nonprofits instituted formal eligibility criteria for CO-CSA membership, such as current participation in SNAP-EBT or self-reported income at or below 185% of the federal poverty level (Table 1). One offered CO-CSA shares to LIHH with children attending Head Start, including parents residing in a women's shelter that had a daycare center.

All allowed weekly installment payments without requiring an upfront deposit and accepted SNAP/EBT. Nonprofit A and Nonprofit D allowed payments in advance. Other accommodations included having bilingual staff and offering bilingual newsletters and application forms (Table 1). In addition to the newsletters, recipes, and blogs, nonprofits held cooking classes and demonstrations, or had done so in the past. Some farms in Nonprofit C's CSA Coalition offered market-style selection; Nonprofit B tailored the contents of its Asylum Share to be more culturally appropriate.

Funding Sources

Nonprofits used multiple strategies to fund the CO-CSA (Table 2). Community partners often helped nonprofits find funding support. For example, one community organization facilitated a market-match grant so that Nonprofit D could offer a 50% cost offset to members with EBT benefits. Similarly, a co-op retailer provided a grant to support Nonprofit C's CO-CSA program.

Outreach and Marketing

Nonprofit CO-CSA marketing methods included distributing flyers and posting announcements on social media and program and farm websites. Supportive partner organizations helped by spreading information through their networks. For example, participating Head Start centers and women's shel-

Table 1. Characteristics of Cost-Offset Community Supported Agriculture (CO-CSA) Programs Operated by Nonprofits

Nonprofit (Onset)	Cost offset	CO-CSA weekly cost (all in US$)	Shares sold, 2018	Eligibility	Other Accommodations
Nonprofit A (2009)	60% 40% 20%	$10 SNAP-EBT $15 Small Share $28 Large Share $20 Social Impact	1,065	SNAP share for recipients only; others, self-reported income	• Weekly newsletter • Cooking demonstrations • Paper and online applications in English and Spanish • Spanish-speaking staff
Nonprofit B (2001)	5%–10% 50% 100%	Sliding Scale: $15 Regular $28 Asylum-seeker	43	SNAP/EBT eligible, according to self-report	• List of share contents emailed in advance • CSA recipe blog • Formerly held nutrition classes
Nonprofit C (1992)	50% up to US$300	Worker shares. Offer extra large, standard, small, and custom sizes	184	≤185% federal poverty level as self-reported	• Cookbook • Newsletters and recipes • Custom swap, free choice, market-style shares at some farms
Nonprofit D (2007)	50%	$25 Full Share $15 Half Share $15 Fruit Share	350	SNAP/EBT users	• Accessible pick-up sites Home delivery • Recipes in weekly box
Nonprofit E (2012)	75%	$5 Intervention $20 Market share	79	Families with children in Head Start	• Culturally appropriate foods included in share • Familiar and convenient pick-up sites and times • Cooking demos • Recipes and newsletters in Spanish

Table 2. Funding Sources for Nonprofit Organizations with Cost-Offset Community Supported Agriculture (CO-CSA) Programs

Organization	Grants	Donations	Government	Events
Nonprofit A	Private foundations (primary source)	None mentioned	City council	None mentioned
Nonprofit B	None mentioned	Member donations (primary source)	None mentioned	Online fundraising campaign
Nonprofit C	Grants, a small amount	Member and individual donations	County funding	Bike the Barns (primary source)
Nonprofit D	CFDA and Market Match via state agency	Unrestricted from individual donors	None mentioned	None mentioned
Nonprofit E	Foundations	Donors, restricted and unrestricted	None mentioned	None mentioned

ters helped Nonprofit D conduct outreach and enroll families. Nonprofits B, C, and D said partners distributed materials at community events. Nonprofit B conducted informational presentations in selected workplaces, and Nonprofit C promoted the program during a CSA open house and a fundraising event. Nonprofit C explicitly mentioned marketing through word of mouth, although it is likely that other programs also benefitted from this method.

Payment Transactions

Nonprofits had various systems in place to accept and track weekly payments (Table 3).

Facilitators to Successful CO-CSA Operation

Strong and supportive relationships between nonprofits, their staff, and local partners, occurring in a community that values fresh local foods and equitable food access, were all key elements of successful CO-CSAs operated by nonprofit organizations.

Several nonprofits mentioned community support for local farmers and food as a factor contributing to their success. Nonprofit B described a vibrant local food culture in its northeastern city, with its large farmers market and food co-op. Nonprofit C similarly described enthusiasm for local foods in their midwestern city:

> The term *food system* is known by almost everybody here. … People get it, they're really tuned in. Local food is really strong and popular here. … The [CO-CSA] program fits really well within that context. —Nonprofit C

Appreciating locally grown foods was complemented by a community concern for social justice. Nonprofit C said local residents demonstrate this through a willingness to provide financial support to the CO-CSA, noting,

> I think people understanding that if they can give more, then they should so that we can distribute that to the people who can't [pay]. So, like, people just don't really question the [US]$5 delivery fee, knowing that the [US]$5 delivery fee helps to offer free delivery for someone else. —Nonprofit D

Community values regarding food justice and locally produced foods extended to other social programs offered by the nonprofit. Nonprofit B's

Table 3. How Nonprofits with Cost-Offset Community Supported Agriculture (CO-CSA) Programs Handle Payment Transactions

Nonprofit	Payment types	Accepting and recording payments	Payment plans and adjustments	Missed payments
Nonprofit A	Cash Check Debit Credit SNAP	Farms use tablets to log payments onto Google spreadsheets. Credit cards processed online. Farms use EBT machine to process SNAP payments.	Payments made in advance on a per week, monthly, or seasonal basis. Members allowed to pause and restart service.	Weekly order canceled if payment missed.
Nonprofit B	Cash Check Credit SNAP	Pick-up sites collect payments, using Farmigo software to log payments. SNAP/EBT payments processed at central office.	Weekly payments made at point of sale (pick-up).	Office negotiates payment plan with customers who miss.
Nonprofit C	Cash Debit Credit SNAP	Nonprofit C collects and tracks payments on behalf of member farms, using payment information provided by shareholders and kept on file.	Monthly installment charged to debit/ credit card, or a post-dated check is cashed. SNAP paid via EBT or by voucher.	Happens infrequently due to advance payment required.
Nonprofit D	Cash Check PayPal Credit SNAP	Pick-up sites collect payments, using Farmiga software to log payments. SNAP payments via EBT machine at pick-up, or by voucher for home deliveries.	Payments made weekly at pick-up or in advance. SNAP users can get 50% discount if they pick up at farmers market	Customer alerted if credit balance is ≤US$5. If a payment is missed, no share is prepared that week.
Nonprofit E	Cash Check SNAP	Pick-up sites collected payments and logged into Google spreadsheet.	Payments made weekly at pick-up. Advance EBT for 14 day period accepted	n/a

* Nonprofit A processes SNAP vouchers, relaying information by telephone or an emailed photograph

CO-CSA helps the nonprofit meet its goal of ensuring food security for immigrants while supporting agricultural economic development:

> A lot of the cost-offset CSAs we offer are going to refugee families … which I think reflects some of the demographic trends of [city], but also is specific to who our farmers are and who our community is. —Nonprofit B

Community confidence in the nonprofit was another facilitator, stemming from an organization's reputation for integrity, competence, and quality service.

> [Success is due to] our community's attitude towards the work we do. I think a lot of people want transparency that we offer about our operation and the food system. And then just the values that dictate our work, like all of the money that we make really goes back into programming. —Nonprofit D

> I would say our mission and values really resonate with people, and also just providing quality service. —Nonprofit A

Nonprofits credited the commitment of staff, volunteers, farmers, and community organizational partners, explaining that their dedication came from believing in the nonprofit's mission:

> Everybody who's on our team wants to work with us because of our mission and values. … [We] came from food-insecure households and so everyone is, I think, really deeply connected to the value of getting people food, especially the people who need it the most. —Nonprofit D

Another nonprofit cited the values of participating farmers, who have a desire for everyone to enjoy the food they grow:

> That manifests in terms of the farms being supportive and, you know, communicating about the program to potential CSA members and to members that might donate to the program. —Nonprofit C

In addition to providing assistance with fundraising and weekly pick-ups, CO-CSAs were able to benefit from their partners' social capital. For example, Nonprofit B and Nonprofit E affirmed that partners' established relationships with LIHH facilitated recruitment and eased participant adjustment to the CO-CSA model:

> I'd say that a strength of the model was … there was somebody that families knew from the Head Start center that was helping get them engaged and excited about it. —Nonprofit E

Media attention was an important facilitator. Nonprofit D described an uptick in demand following an article comparing their social enterprise to the business model of a for-profit competitor:

> Our share numbers really skyrocketed after we published an article critiquing [competitor]—that came out in the last week of August in 2018. … The conversations that we are willing to have about the food system and that contributes to the success of our CSA. —Nonprofit D

Challenges to Successful CO-CSA Operation

Nonprofits described a few challenges to successful CO-CSA operation, mostly related to persistent barriers experienced by LIHH.

For example, weekly pick-up reportedly posed few problems, but accepting SNAP/EBT payments could be burdensome for both the CO-CSA and the customer:

> I do think one of the biggest struggles we've had is having people have to come to our office to pay with their EBT/SNAP benefits, 'cause the USDA requires you to pay [with SNAP benefits] in person and you can't pay in advance, so people have to come once a month to our office, which is kind of a barrier to some folks. —Nonprofit B

The lack of educational resources and cooking classes may have affected customer retention as some participants were uncertain how to use unfamiliar produce:

> More so than having to go somewhere to pick up the bags, I think the bigger challenge is providing unfamiliar produce and not maybe as much support on what to do with that produce as some people may need.
> —Nonprofit B

The perceived inconvenience of the CSA model may have been another impediment to customer retention. Despite the lower cost and a convenient pick-up location, some LIHH appeared to prefer shopping at supermarkets, where they had choice and flexibility about the way they spend their limited food dollars, according to one interviewee:

> People are interested in fresh food but would much prefer to get it in smaller quantities from stores. Like, we hear that from our very-high-income customers too. I think it just showed up sooner with low-income customers because they just don't have as much flexibility.
> —Nonprofit E

Thus, even though CO-CSA members perceived the model to be affordable and convenient, many wanted more choice and flexibility in how they spent their limited food dollars. Ultimately, Nonprofit E discontinued the CO-CSA program and focused exclusively on providing fresh produce to LIHH through their work with farmers markets and small retailers.

Advice on Operating a CO-CSA

Both Nonprofit C and Nonprofit E recommended that new CO-CSA programs strive for simplicity when setting up administrative procedures, logistics, and systems for processing and tracking payments:

> Just really, think through each of the pieces to start with and try to keep it as simple as possible. —Nonprofit C

Nonprofit D noted that creativity, flexibility, and a determination to do a lot with very little went a long way toward maintaining its social justice food program:

> Be like self- and community-funded as much as possible, because, you know, a lot of grants don't wanna fund labor. … [Bank loans] have a lot stricter repayment rules than like getting your community to donate money towards your program when you need it. … You can do it with very little and still get it done. And I think sometimes people get caught up in the waiting for the perfect moment and like you need all of the right equipment.
> —Nonprofit D

Nonprofit C emphasized that calling on the power of community partners helped it promote the CO-CSA, advising that new programs

> to not stand alone, to think about the program in the context of a community—'cause a lot of people have shared interest and a lot of people are really invested in healthy foods and ensuring folks have access to good, local veggies. —Nonprofit C

When asked to offer final thoughts on operating the CO-CSA program, Nonprofit A commented on the difficulty of balancing social values and the need to make a profit for farmers:

> I think the challenge at the intersection of local food and food access is that truly meeting the needs of local farmers and low-income communities are in competition with each other and I think that's something that folks don't really talk about or think about, but it's a reality that needs to be addressed. —Nonprofit A

LIHHs and CO-CSAs

In closing, we asked respondents to share their reflections on what motivates LIHH to participate in their CO CSA program, receiving these comments:

> We have these really great, nuanced conversations with people that really value it because

> their money is more limited and so they're really thinking about the program and what the vegetables will do for them in a really detailed sense. … They wanna make sure that their kids have fresh, healthy, organic food. Or, they've heard from their doctor, they're facing a health issue and the doctor was like, eat clean, eat fresh, eat healthy, eat organic as much as possible. —Nonprofit C

> [CO-CSA members] indicate a higher level of understanding of what a farmer faces in terms of difficulties and challenges … Somebody who's having trouble making their payments, a lot of times they'll be like, 'you know, I'm really sorry and I especially feel really bad because I know farmers don't make a lot of money.'… So, there's definitely that strong interest in supporting the local economy and their local farmers. —Nonprofit C

However, not all members from LIHH participate because they embrace CSA values:

> Generally, people are interested in fresh produce and for some people, they're also connecting it to the aspects of local agriculture and local economy. But, certainly not everybody. In fact, the sites that are in some of the highest peak areas, for them it's just about … making sure that they have fresh produce where they often don't. —Nonprofit A

Discussion

CO-CSA programs have the potential to improve access to fresh, local FV for LIHH while simultaneously increasing farm revenues, but this model may be challenging for single farms to implement alone. Our interviews with five well-established CO-CSA programs illustrated several ways of administering a CO-CSA program: (1) providing direct subsidies to individual CO-CSA member farms; (2) functioning as an aggregator of regional produce, by packing and delivering shares themselves; and (3) sourcing from an in-house farm incubator or food hub, then packing and coordinating delivery to pick-up sites.

In previous studies, farmers have expressed concerns about the time, labor, and skills it would require to raise funds, recruit low-income members, and administer the CO-CSA going forward (Quandt et al., 2013; Sitaker et al., 2020b). Nonprofits are able to address these challenges through the infrastructure, resources, and staffing they are able to devote to operating the CO-CSA.

The nonprofit CO-CSA directors and managers we interviewed said collaborating with community partners helped facilitate outreach and recruitment. For some, community partners also supported the CO-CSA with ancillary programming such as nutrition education. Nonprofit directors and managers credited their CO-CSA's success to the dedication and competence of staff and partners who shared a common vision to make fresh, local produce more accessible to LIHH. Community enthusiasm for locally grown foods and support for the nonprofit's broader social justice mission were also identified as facilitators.

Respondents said many CO-CSA members appeared motivated to join by a desire to enhance their health and that of their families. Additionally, the ability of those living in food deserts to access fresh, local produce "at a good price" may have motivated them to participate. According to respondents, some CO-CSA members seemed committed to supporting farmers who grow their food. This may explain why few reported problems with timely pick-up and payment, a concern about CO-CSA that farmers had reported previously (Quandt et al., 2013; Sitaker et al., 2020b). However, nonprofit CO-CSA managers and directors may underreport problems with timely pick-up and payment because they had less direct experience with these activities, or because they sometimes rely on farmers to manage distribution and payment transactions.

A comparison of CO-CSAs operated by nonprofit organizations and single farms deserves further investigation, particularly with regard to customer retention, operational efficiencies, relative effectiveness, cost-benefit ratios, and impacts on farm profitability. While nonprofit CO-CSAs have the advantage of having designated staffing, resources, and expertise, they may still struggle to allocate these resources to balance the twin goals of maximizing food security for LIHHs and support-

ing the economic viability of local farms. Research aimed at explicating the advantages and challenges of organization-led CO-CSAs compared to single-farm CO-CSAs is needed to inform policies and practices that can increase access to fresh, local produce for LIHH while providing equitable returns to farms.

Limitations

The interviews with managers and directors from five nonprofit CO-CSAs provide a useful description of the characteristics and operations across geographically diverse programs. However, none was identified in the southeast region of the U.S. Findings from this purposive sample cannot be generalized to all CO-CSAs operated by nonprofits. Further, this analysis would have been enhanced by the addition of a diverse array of perspectives from other staff and partners engaged in CO-CSA operations. Gathering and examining quantitative data on the costs of operation, revenue, and profitability were beyond the scope of this study and thereby limited our conclusions about the economics of nonprofit CO-CSA programs.

Conclusions

CO-CSAs are a potential solution to limitations in access to fresh, local produce for LIHH and may also expand markets for CSA farmers. Nonprofit organizations have dedicated staff and resources to operate the CO-CSA programs, and therefore may be better able to handle the required fund-raising, recruitment, and administration than single farms, whose priority is running their farm business. This study of five nonprofits with established CO-CSAs adds to our knowledge of nonprofit CO-CSA programs and illustrates the diversity of approaches used to organize, source, and aggregate produce, and to pack and distribute CO-CSA shares on a large scale. CO-CSAs operated by nonprofits relied on grants and local government funding to support their operations. Future research should examine the relative merits of CO-CSAs led by nonprofits compared to those operated by single farms to implement the models more broadly and stimulate federal grant support for CO-CSA.

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Appendix A. Interview Guide for CO-CSA Programs Operated by Nonprofit Organizations

Demographics:

Name of organization: _____

Name of contact person: _____

Address: _____

Email: _____ Phone: _____

Website: _____

First, I'd like to hear about your organization.

1. How would you describe your organization? [PROBE: would you describe it as a food hub? state agency? nonprofit? etc.]
   a. Is your CO a stand-alone organization or a program of a parent organization?
   b. How long has the CO program been in operation?
   c. What other services does your organization offer?

Next, I'd like to hear how your cost offset program operates.

Let's start with participating farms.

2. Tell me about the farms that currently participate in the CO CSA.
   a. How many are there?
   b. About how long have they participated in the CO CSA?
   c. What is the geographic "spread" of these farms (e.g., within a 5 mi, 10 mi or 25 mi radius, etc.)?

3. How do new farms usually get involved with your CO CSA program?

Next, I'd like to ask about participating CO-CSA members.

4. How many CO-CSA shares did your organization subsidize in 2018?
   a. How does this compare to past seasons?
   b. How many are repeat members? (Note, this may only be known to participating farmers)

5. What are the eligibility criteria for CO-CSA membership?
   a. Is it the same for all farms?
   b. Who sets the criteria and applies it?

6. How do potential CO CSA members hear about the program?
   [PROBE: What outreach/marketing activities are conducted to inform low-resource consumers about the CO? who is responsible for this work?]

Now, we will more on to CO-CSA operations.

7. Who is the key decision maker (the organization or the farmer(s)) regarding:
   a. CSA share sizes (e.g., regular and half shares) and prices
   b. Percent of the market share price that is cost-offset
   c. What goes into each weekly share? [PROBE: Do you tell farmers what to grow, or do they make this choice themselves?]

8. Tell me about how CO-CSA shares are packed and delivered each week. [PROBE: Do farmers deliver food to a central location, which your organization subsequently packs and delivers to pick-up sites? Or, do participating farms handle some or all that?]

9. Tell me about how CO-CSA pick-up sites and how they're selected (PROBE: Is there a central pick-up location for CO-CSAs from multiple farms? Does each farm have its own pick-up site(s)?)

10. Who collects installment payments? [PROBE: How are missed payments handled?]
(What system do you use to streamline this administrative task?)

11. Do you offer any other ways that make it easier for low-income families to purchase CSA shares?
[PROBE: "For example, do you offer…"]
    - Installment payment plans
    - Accepting SNAP/EBT
    - Choosing accessible sites for CO-CSA pick-up
    - Tailoring box items to meet preferences of low-income families
    - Allowing market-style selection of items
    - Weekly box includes simple recipes
    - Newsletters with tailored tips and advice
    - Referral to nutrition education programming
    - Other_____

Now I'd like to hear about your community partnerships.

12. What community partners help you with CO-CSA?
[Probe: For example, local nonprofits, Extension, colleges, religious organizations, and businesses]

13. What roles do these partners play?
[PROBE: For example, do they provide….
    - a convenient pick-up site location for your low-income community members
    - transportation to a pick-up site
    - assistance with share pick-ups or administrative support (i.e. bank accounts, EBT equipment, farmer reimbursements)
    - market assessment or other data collection and analysis
    - outreach support, such as identifying and enrolling CO-CSA members, or translation of outreach materials

14. Finally, I'd like to know more about the fundraising you do to support your CO-CSA program.
    a. Tell me about your funding sources
    [Prompt: do you have grants from state agencies; foundations, businesses; fundraising events; social enterprises that generate funds, other?]
    b. Roughly speaking, what is your annual fundraising goal?
    c. Do any of your local partners help with local fundraising? If so, who are they and what are their roles?
    d. Are participating farms also responsible for raising/contributing funds for the CO-CSA? If yes, what proportion?

I have just a couple more questions to wrap things up.

15. Can you identify any unique characteristics of your organization that contribute to the success of your CO-CSA? Are there any aspects of your local context—public attitudes, lack of other local food outlets, etc.—that make it easier to operate a CO-CSA?

16. What advice would you give to other organizations who want to develop an organization program like yours?

Appendix B. Logistics

Table B1. Logistical Arrangements of Five Nonprofit CO-CSAs

Topic	Nonprofit A	Nonprofit B	Nonprofit C	Nonprofit D	Nonprofit E
Role of the nonprofit	Previously, worked directly with farms but began working with 4 food hubs in 2016. Additionally, Nonprofit A provides training, tools, supplies, and technical support to manage pick-ups and collect payments.	The CO-CSA program is self-contained; all CO-CSA functions are managed and handled by Nonprofit B.	44 farms with CO-CSAs in the Nonprofit C Coalition receive a cost-offset. Nonprofit C manages customers' monthly installment payments and then forwards them to each farm.	Nonprofit D functions as a food hub, buying produce from local farms. Nonprofit D selects items from a producer-generated list of available products to include each week.	For its CO-CSA program, Nonprofit E worked with farms in its training program. It coordinated with Head Start to recruit participants and serve as pick-up sites.
Setting price and cost-offset amount	Each food hub sets prices for various items; Nonprofit A selects items to purchase, based on price and availability.	The food hub determines share cost and cost-offset parameters, and selects items for the weekly share in consultation with its member farms.	Nonprofit C sets cost-offset parameters (amount and cap). Each farm decides what to grow and determines share sizes and pricing.	Nonprofit D sets the cost-offset parameters, and growers set prices.	The Nonprofit E CO-CSA coordinator made decisions in collaboration with participating farms about share sizes and pricing.
Where food is sourced	Since 2016, Nonprofit A has contracted with 4 food hubs that aggregate food from over 200 growers, mainly from NY and NJ, but as far south as PA and as far north as ME.	The nonprofit runs two training/ incubation farms within a 45-mile radius of Portland, ME, that provide food.	44 member farms are mostly in southern Wisconsin, with some elsewhere in WI and one in MN.	Five farms owned by a person of color, and 2 honey producers, all within 70 miles of Oakland. Farms deliver to Nonprofit D's North Oakland office.	5 farms ranging in size from 30 acres to a half-acre, located in suburban, urban and agricultural conservation lands.
How food is delivered	Produce is delivered to 23 CSA market-style pick-up sites in health clinics, colleges, senior centers, churches, housing developments, and city agencies. Pick-up is managed by volunteers and consumers assemble their own boxes.	Farmers pack and deliver the CO-CSA shares to participating pick-up sites, located in public places such as the YMCA, breweries, and work sites with at least 10 employee shareholders.	Farms pack and deliver CO-CSA shares to pick-up sites of their own choosing.	The nonprofit aggregates and packs weekly CSAs, then dispatches delivery drivers to pick-up sites, located at volunteers' homes. Sites are chosen based on accessibility, visibility, and theft prevention.	Farmers packed the weekly shares and delivered them to Nonprofit E's office, for subsequent delivery by the coordinator to pick-up sites at five Head Start locations and a women's shelter daycare. In the final year of CO-CSA operation, farms delivered weekly shares directly to the pick-up sites.

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Food sovereignty and farmland protection in the Municipal County of Antigonish, Nova Scotia

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Abstract

This case study of the Municipal County of Antigonish (MCA) in the Canadian province of Nova Scotia assessed the extent to which agricultural land use planning accommodates those societal interests seeking to embed food sovereignty at the municipal level. Data were collected through content analysis of legislative documents, key informant interviews, and a review of the grey literature. Results suggest that the relatively weak municipal planning system in place prioritizes private interests over the public interest in farmland protection. The resultant gaps in the legislative setup in the MCA further reveal that food sovereignty actors and/or ideas have little influence over municipal governance of farmland protection. Broader historical and contemporary trends in Nova Scotia and Canada at large suggest that farmland will continue to lose ground to forces intrinsic to the dominant policy paradigm of market liberalism. Concluding thoughts call for "bringing back the (Canadian) state" itself as central to constituting a new agricultural policy paradigm.

Keywords

Agricultural Land Use Planning, Farmland Protection, Policy Regimes, Food Sovereignty

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Introduction

Supporting food sovereignty and protecting farmland seem like compatible policies. However, at the local level, there appears to be a disconnect between the two. To gain insights into the relationship between these two areas of policy, this paper presents the results of a case study of agricultural land use planning in the Municipal County of Antigonish (MCA) in northern Nova Scotia (NS), Canada (Map 1). For our purposes, farmland protection centers on legislation by any level of government that governs the uses of agricultural land (e.g., laws, by-laws, regulations, and policies) while promoting agricultural uses. This understanding of farmland protection is distinct from farmland preservation, which encompasses broader programs, such as soil conservation or other environmental practices, as well as mechanisms available to private landowners, such as land trusts and easements, that restrict the rights to use agricultural land.

Policy regimes combine issues, ideas, interests, actors, and institutions in public policy and are potentially "messy" regarding their integration across institutional scales (Jochim & May, 2010). Crossing multiple scales of governance, actors in agricultural policy regimes may include citizens, all levels of government, local organizations, professional organizations representing producers, farmers, unions, industry trade associations, and environmental groups, among others (Connell et al., 2013). This paper focuses on the policy regime of

Map 1. Canada's Provinces and Territories

Source: Worldatlas.com.

food sovereignty and its relationship to agricultural land use planning.

We follow Food Secure Canada's (n.d.) definition of food sovereignty: "Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (para. 1). The food sovereignty movement originated in the Global South; Canada's food sovereignty movement has its roots in the oil and food price shocks of the 1970s. Over many years, a network emerged in Canada called the People's Food Policy Project (PFPP) that eventually employed "food sovereignty" to build a national food policy agenda from 2008 to 2011 (Martin & Andrée, 2017; Shawki, 2015). The National Farmers Union (NFU), a founding member of La Via Campesina, Food Secure Canada (FSC), and the Canadian Federation of Agriculture (CFA) are prominent food sovereignty actors nationally (Connell et al., 2013; Martin & Andrée, 2017; Shawki, 2015). Food sovereignty–related initiatives have included farmers markets, community gardens, food cooperatives, and local food councils (Connell et al., 2013).

Food sovereignty's recent emergence in Canada reflects growing public concerns about the security and safety of the domestic food supply; urban household food insecurity; the struggles of family farms, debt, and concentration in both suppliers and retailers (AAFC, 2020); and the non-agricultural development of 4,633 sq. miles (1,199,941 hectares) of farmland since 1971, much of it on prime agricultural land under the Canada Land Inventory (Connell et al., 2013). These are among the trends that have galvanized food sovereignty actors to propose an overhaul of the current agri-food system in Canada. Yet the question of agricultural land use planning has received scant attention from proponents of food sovereignty who, by and large, do not connect local food systems to the Canadian land base (Connell et al., 2013).

Food sovereignty has been called an idea, concept, framework, mobilizing tactic, counter-narrative, countermovement, political project, campaign, process, vision, or even a living organism (Desmarais, 2015). Food sovereignty's conceptual plasticity is both a strength and a weakness, given that its proponents have struggled to operationalize the concept across Canada's orders of government. The municipal level especially is a black box regarding agricultural land use planning, even though the effects of food system planning are most acutely felt locally in household food insecurity, waste management, climate impacts, agri-business failure, and agricultural land loss (Lavallée-Picard, 2016; Robert & Mullinix, 2018; Shawki, 2015).

Studies at the municipal level in Canada, nevertheless, have advanced our understanding of food sovereignty concerns locally. Mendes' (2007) study on urban Vancouver calls for rethinking food planning by reframing scales and coordinating governance. Studies on food systems planning in British Columbia and Quebec have revealed strenuous community efforts to strengthen food system planning municipally (Lavallée-Picard, 2016). A case study from northern Manitoba has examined notions of Indigenous food sovereignty (Rudolph & McLachlan, 2013).

However, gaps remain, both demographically and geographically, including in relation to marginalized urban populations, ethnic and newcomer groups, as well as in Canada's North, French-speaking Canada (which has its own culture around food sovereignty), and Eastern Canada (Levkoe, 2013), where this case study is located. Through an examination of the convergences of food sovereignty, municipal governance, and farmland protection in the MCA, this study seeks to fill a regional and thematic gap.

Objective and Methodology

This case study's research objective is as follows:

> To assess the extent to which agricultural land use planning accommodates those societal interests seeking to strengthen the food sovereignty policy regime at the local level of the MCA.

The main work, completed between 2015 and 2016, undertook document analyses and key informant interviews, with updates made during 2019–2021. The documents selected composed the

provincial-municipal legislative framework for Nova Scotia (Table 1). We then analyzed these documents by searching for themes, key statements, and word placement, including whether the local legislative documents were enforceable or aspirational (Connell & Cameron, 2016).

The follow-up questionnaire sought to elicit feedback on the legislative report as well as gain additional insights on what we may have missed, the strength of farmland protection in the MCA, and the extent to which food sovereignty ideas had changed agricultural land use planning (for the questionnaire, see Connell & Cameron, 2016). Six semistructured interviews were conducted with

Table 1. Legislative Framework for Nova Scotia and the Municipal County of Antigonish

	POLICY [Source]	LEGISLATION	GOVERNANCE
PROVINCIAL	*A Review of Initiatives Intended to Conserve Agricultural Land* (2008) [Devanney & Maynard, 2008] *Homegrown Success—a 10-year plan for Agriculture* (2010) [Nova Scotia Department of Agriculture, 2010] *Preservation of Agricultural Land in NS* (2010) [Williams et al., 2010] *Protecting and Preserving Agricultural Land in NS: A Policy Framework* [Nova Scotia Department of Agriculture, no date]	*[MGA] Municipal Government Act of 1998* [Nova Scotia Department of Municipal Affairs and Housing (NSDMAH), 2021] *Statement of Provincial Interest Regarding Agricultural Land, Schedule B* [Nova Scotia Department of Municipal Affairs and Housing (NSDMAH), 2021] *Agricultural Marshland Conservation Act*. (SNS 2000, c. 22, s. 1) [Nova Scotia Government (NSG), 2000] *Farm Practices Act* [NSG, 2020b]	Provincial Director of Planning Nova Scotia Utilities and Review Board
REQUIRED INTEGRATION	*MGA C.18, s.193:* "The Governor in Council, on the recommendation of the Minister, may adopt or amend a statement of provincial interest necessary to protect the provincial interest in the use and development of land." *MGA* 196 Provincial activities reasonably consistent The activities of the Province shall be reasonably consistent with a statement of provincial interest. *MGA [Statement of Provincial Interest Regarding Agricultural Land, Schedule B]:* To protect agricultural land for the development of a viable and sustainable agriculture and food industry . . . 1. Planning documents must identify agricultural lands within the planning area . . . 2. Planning documents must address the protection of agricultural land.		
LOCAL	Municipal County of Antigonish (MCA) Integrated Community Sustainability Plan (ICSP) [MCA, 2009]	*Municipal Planning Strategy for the Central Antigonish Plan Area* [MCA, 2013a] *Central Antigonish Land Use By-law* [MCA, 2013b]	Central Antigonish Area Advisory Committee

Italic: Acts (provincial laws), by-laws (local government laws, e.g., official municipal plan)
Bold: Enforceable policy, regulations pursuant to acts
Plain text: Aspirational policy at all levels

provincial and municipal planners, as well as a representative of a farmers' organization and a food security organization in the MCA and Town of Antigonish.

A supportive government planner in the NS Department of Municipal Affairs and Housing (NSDMAH), who had studied under one of the national team leaders of the SSHRC project at the University of Guelph in southern Ontario, facilitated contacts with government and farmer representatives. The first author's links in the Town of Antigonish, both to extended family and to St. Francis Xavier University (St. FXU), facilitated identifying the food security organization representative. These six key informants were well conversant with agricultural land use planning and/or food sovereignty issues. To maintain confidentiality, the interviews are numbered from one to six. A review of media and grey literature on the MCA rounded off the data-gathering techniques.

The paper is organized as follows: Part 1 sets the theoretical and methodological context for the case study on food sovereignty and farmland protection in the MCA. The results of the paper compose Parts 2 through 4. Part 2 is technical and surveys the planning system for farmland protection in Nova Scotia and the MCA as well as outlining the local farming context. Part 3 reveals a planning system that prioritizes the private disposal of farmland for non-agricultural uses over its protection for public interests. Part 4 notes the virtual absence of the food sovereignty policy regime in the MCA's documentation. It also shares the perspectives of planners, farmers, and civic actors on this lack of presence in planning documents and ways forward to strengthen food sovereignty in the MCA. The final section explores the wider implications of this study for "bringing back the (Canadian) state" as a site itself for food system transformation.

Agricultural Land Use Planning in Nova Scotia

A legislative framework includes legislation, policies, and governance structures. Nova Scotia's most important legislative document is the Municipal Government Act (MGA) of 1998, governed by the Department of Municipal Affairs and the Provincial Director of Planning, listed in the provincial legislative cell in Table 1.

The provisions for provincial land use policy are guided by Statements of Provincial Interest (SPIs) that include the protection of high-quality farmland, known floodplains, and municipal drinking water; the provision of affordable housing; and the best use of infrastructure (NSDMAH, 2021). Development undertaken by the province and municipalities should be "reasonably consistent" with the SPI (NSDMAH, 2021). These guidelines were intended to assist in municipal decision-making processes. Section 208 provides that planning documents are subject to review by the provincial director of planning and would go to the minister if the planning document affects an SPI (NSDMAH, 2021).

The specific SPI relevant to farmland seeks "to protect agricultural land for the development of a viable and sustainable agriculture and food industry" (NSDMAH, 2021, p. 296). Planning documents must both identify and address the protection of agricultural land and balance these with non-agricultural uses (see NSDMAH, 2021). The SPI "applies to all active agricultural land and land with agricultural potential in the Province" (NSDMAH, 2021, p. 296)—although "active" and "potential" are not defined. For municipalities that opt to do planning, the MGA 1998, Section 213 states that "The purpose of a municipal planning strategy is to provide statements of policy . . . to guide the development and management of the municipality. . ." (NSDMAH, 2021, p. 129). One interviewee described the farmland protection language in the SPI as "wishy-washy" but added that at the time, the planners hoped that an incremental approach would encourage municipalities to adopt planning (Interview #1).

A municipal planning strategy (MPS) may take various forms, including an intermunicipal planning strategy or a secondary planning strategy. A land use by-law (LUB) is a companion document to an MPS that allows a municipality to enforce its vision as defined by the MPS. Were an MPS not reasonably consistent with the SPI, it would be flagged for refusal (Interview #2). However, an amendment to the LUB, such as a rezoning request, would not go to the province for approval

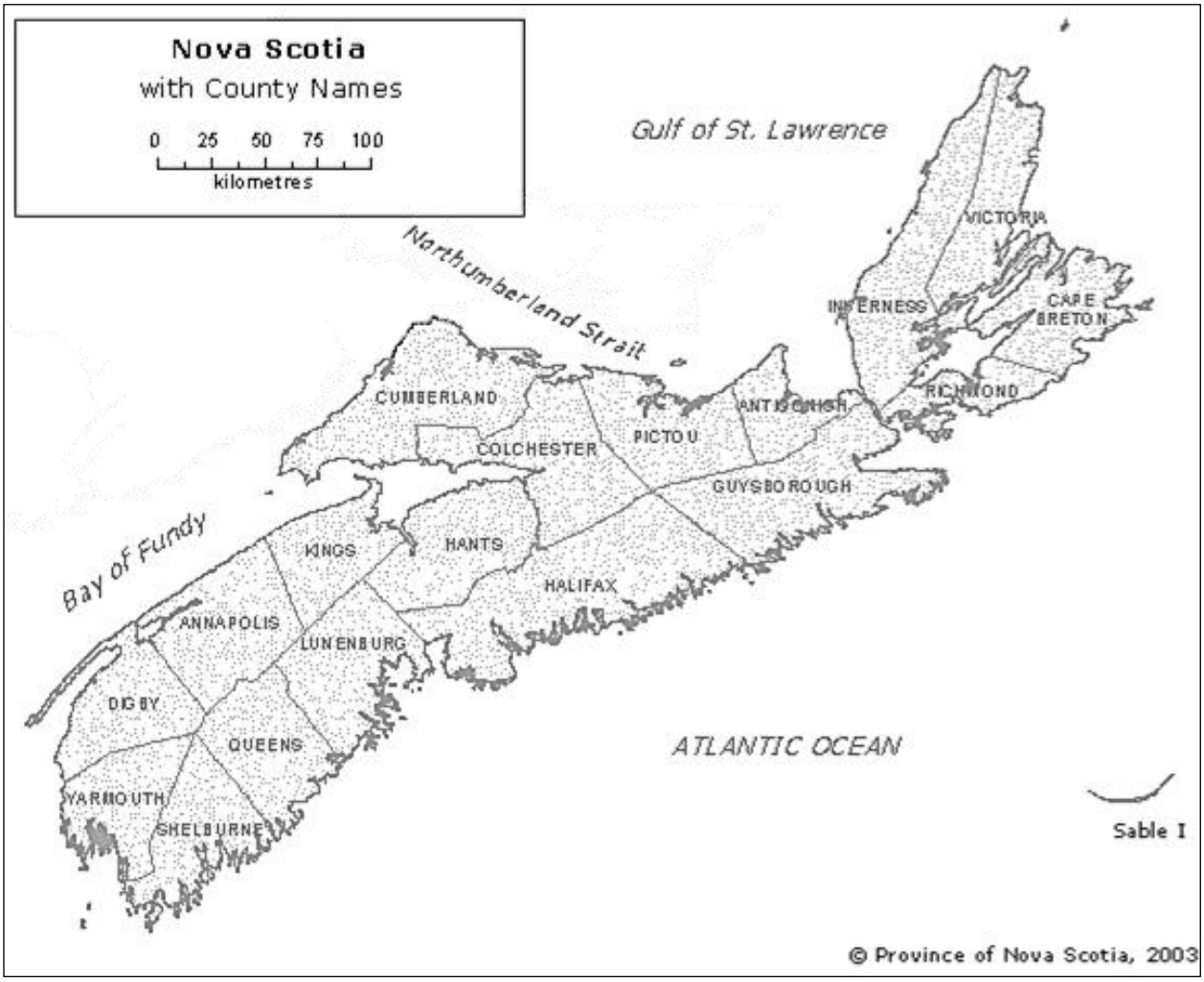
but could be appealed to the Utilities and Review Board (Nova Scotia URB, 2020) (see Table 1 under Provincial Governance). Were a municipality in noncompliance with the SPI, it would then be notified that compliance would be expected within a reasonable length of time.

Planning in relation to farmland protection across rural municipalities in Nova Scotia is a patchwork of comprehensive, single, district, and no planning systems (Map 2). Farmland protection is divided into the following categories:

i. Zoning to protect
ii. Permissive zoning
iii. No zoning

"No zoning" means that there is nothing in place regarding land use without a plan, except for building codes. For example, in a non-planning context, one could find a bottling recycling plant next to a residential house or farm (Interview #1). For those rural municipalities that do undertake planning, most only "recognize" but do not "protect" agricultural land in their municipal planning strategies (permissive zoning). For comprehensive planning, a rural municipality must address all the SPIs in the MGA 1998. "Comprehensive" means the plan deals with a variety of land use issues together (which has nothing to do with the area covered by the plan and could be on a district level as well), such that land is identified and given

Map 2. County Names and Boundaries of Nova Scotia, Canada



Source: Map of Nova Scotia, https://bestmapof.com/map-of-nova-scotia.html [no longer online].

specific zoning to protect it (Interview #2).

To protect farmland, a municipal council must have permission for change of use, and once "protected," must follow the MGA 1998's SPI. Comprehensive planning that protects agricultural land across a whole municipality is found only in King's County, a critically important subregion of Nova Scotia's agricultural sector that includes the Annapolis Valley (Connell & Cameron, 2016). The MCA is one of the partially planned municipalities in the province (permissive zoning), making it an interesting case study. Most rural counties are typically unplanned or have only permissive zoning (Cameron & Connell, 2016). As shown in Map 3, much of the Class 2 land in NS (there is no Class 1 in the province) is unprotected. For a list of all the counties and their level of protection, see NS Government Agricultural Land Protection (NSG, 2020a).

The MCA, governed by a council of 10 members, provides a wide range of municipal services and is assisted in the discharge of its duties by the Eastern District Planning Commission (EDPC), whose mandate (as per MGA 1998, Section 255) is to provide intermunicipal services, such as assistance with planning documents, and building inspection services. Current land use planning in the MCA was established as needed in different sections of the MCA. Currently, the Eastern, Central, Fringe (adjacent to Town), and Keppoch-Beaver Mountain municipal plans regulate development for most of the area and population of the MCA (Interview #4). The Town of Antigonish, a separate entity, is governed independently of the MCA (Malhotra, 2009). Below we provide the rural and farming context in the MCA to situate the local planning dynamic around farmland protection and food sovereignty.

Farming and Food Systems in the MCA

Located in northern Nova Scotia (Map 4), the MCA covers 1,458 square kilometers (563 square miles). It consists of 26 small rural settlement areas (such as hamlets), with approximately 15,000 people, most located close to the Town of Antigonish (approximating 4,400 people) and along the Trans-Canada Highway. The MCA is bounded by Pictou County to the west, the Canso Strait to the east, Guysborough County to the south, and the Northumberland Strait to the north. The South River and West River are the biggest rivers that run through the county. The less populated southern part of the MCA is primarily highlands. Antigonish's climate is moderate, with cold winters and temperate summers.

The economic drivers of the MCA, and the town, include forestry, fisheries, the trades, retail, and the health and education sectors, notably Saint Martha's Regional Hospital and St. FXU. Tourists are also drawn to MCA's beaches along the Northumberland Coast and its historical and cultural amenities—particularly its Celtic heritage, celebrated in the annual Antigonish Highland Games since the 1860s (Campey, 2007). Agriculture (especially in the central area) in the MCA remains productive and employed roughly 5,300 people in 2013 (NSFA, 2012a).

Trends in agriculture in Nova Scotia mirror those of North America, generally speaking, with concentration in farm ownership in tandem with industrialization and urbanization. From a peak of 60,000 farms in 1891, there were no more than 24,000 left in Nova Scotia by 1951, and many were part-time or subsistence (Mackinnon, 1996). Technological advances, coupled with the transportation revolution, made it economically feasible to import fruit, grains, meat, etc., from distant world markets. By the 1950s, the province was experiencing deficits in foodstuffs despite robust local production (MacKinnon, 1996).

Today it is estimated that only 8.4% of Nova Scotian food consumption comes from Nova Scotian farms (NSFA, 2020). The most recent 2016 national census counted 3,478 farms in Nova Scotia, a 10.9% decline from the 2011 census, with a concomitant 10.1% drop in total acreage to 0.9 million acres (Statistics Canada, 2016). Nova Scotia remains among Canada's most rural provinces. In 2016, 34% of Nova Scotians lived in rural and small-town communities (R. Bollman, personal communication, June 2017). The population generally declines the further one goes from Halifax, the provincial capital (Gibson et al., 2015).

The MCA accounts for approximately 6% of Nova Scotia's agricultural land and 4.7% of its Class 2 soil and possesses moderately good soils, including Class 3 and Class 4 agricultural lands

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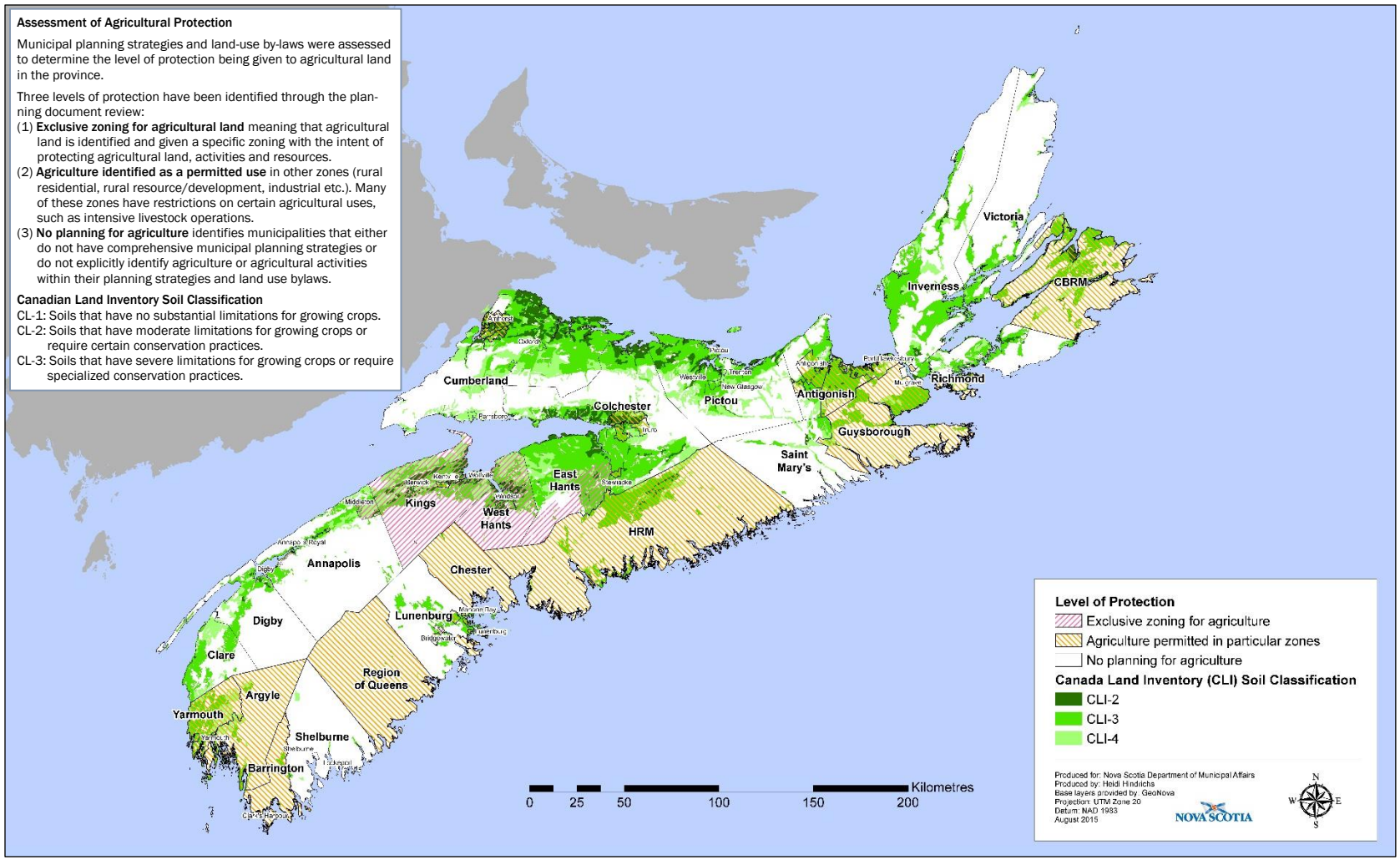
https://foodsystemsjournal.org

Map 3. Agricultural Land Protection through Municipal Land Use Planning in Nova Scotia, Canada



Source: Geo-Nova Scotia, 2015.

Map 4. Location of the Municipal County of Antigonish, Nova Scotia, Canada

Source: Nova Scotia Federation of Agriculture, Statistical Profile of Antigonish County, 2012a.

(MCA, 2013a). Estimates are that 31% of Class 2 soil in the MCA are being farmed (Devanney, 2010). In 2011, the average farm size in Antigonish County was 274 acres (111 ha), larger than the provincial average of 260 acres (105 ha); around 35% of farms were less than 129 acres (52 ha) (NSFA, 2012a). Farms in the MCA reported a total of approximately CA$26.1 million in farm receipts in 2010; however, most individual farms reported revenues of less than CA$50,00 (AFSC, 2013; MCA, 2013a; NSFA, 2012a). There are 226 registered census farms in the MCA, concentrated in cattle ranching, floriculture, and Christmas trees, as well as around 34 dairy farms (AFSC, 2013; NSFA 2012a).[1]

The MCA's farm sector faces challenges common across Canada, such as restrictive marketing channels, labor supply bottlenecks, tightening regulations, static farm gate prices, an aging farm population, lack of new farm entrants, and competition with cheap imports (AFSC, 2013). For example, cattle ranching has dramatically decreased since 2006, with farm numbers dropping from 93 to 74 (-20.43%) (NSFA, 2012a). Beef farmers have struggled to compete with those in Western Canada in terms of grain supply feed. Grass-fed pasture, however, may present niche market opportunities for Nova Scotian beef farmers (AFSC, 2013). These broad trends have hurt all farm subsectors outside of supply management. Established in the 1970s for the dairy, chicken, egg, and turkey industries, the supply management system is based on three pillars: the control of prices, the control of supply, and protection from foreign competition.

[1] For the complete definition of a census farm, see Statistics Canada (2016).

These operate under national supply management systems controlled by national bodies and provincial commodity marketing boards (Library of Parliament, 2016).

A nascent local food movement in the MCA and Town of Antigonish comprises food cooperatives, U-picks, community supported agriculture (CSA) operations, farm accommodations, and an expanding blueberry sector covering 534 ha, often on disused farmed land (Interview #6). The town's farmers market had roughly 900 visitors, 60 vendors, and CA$600,000 in sales in 2010 (NSFA 2012a). Non-census "kitchen" garden farmers, numbering somewhere between 20 and 50 people usually working on less than 10 acres (4 ha), frequently sell their produce locally and in town.

All these issues in the MCA—the decline of beef farming, the supply management system, local niche markets for conventional farms, and prospects for the fledgling local food movement—are reflected in the case study results below.

The MCA and Farmland Protection

We selected an example of agricultural land use planning in the MCA from the Central Plan Area for this study because of its large size and extensive rural base, and the relatively recent (2013) passing of its Municipal Planning Strategy. The Central Antigonish Plan Area (Map 5), situated between the Eastern Region Plan Area and the Fringe Plan Area, is composed primarily of low-density rural development situated alongside waterways and highways, with some local commercial, small-scale industrial, agricultural, forestry, fishing, and tourism enterprises (MCA, 2013a). The MCA recognizes the visual and economic benefits that the natural assets of the Central Antigonish District present to the local economy, area residents, and visitors (MCA, 2013a). And while the MCA MPS encourages non-agricultural development in designated hamlets to avoid land use conflicts, the council inserts the qualifier "where possible," suggesting that the commitment to do so may be secondary to allowing non-agricultural development on farmland (MCA, 2013a, pp. 10, 19).

The MCA is aware of the controversies surrounding the protection of farmland. The MPS says that there are development pressures on farmland, including from the farming community itself, which calls for the council to consider the issue of farmland loss further, either through a countywide planning exercise or through additional investigation into regulations or incentives. However, by side-stepping this core issue, precedents may have been set in favor of private interests. The MPS even appears to question the right of government to infringe upon private landowners:

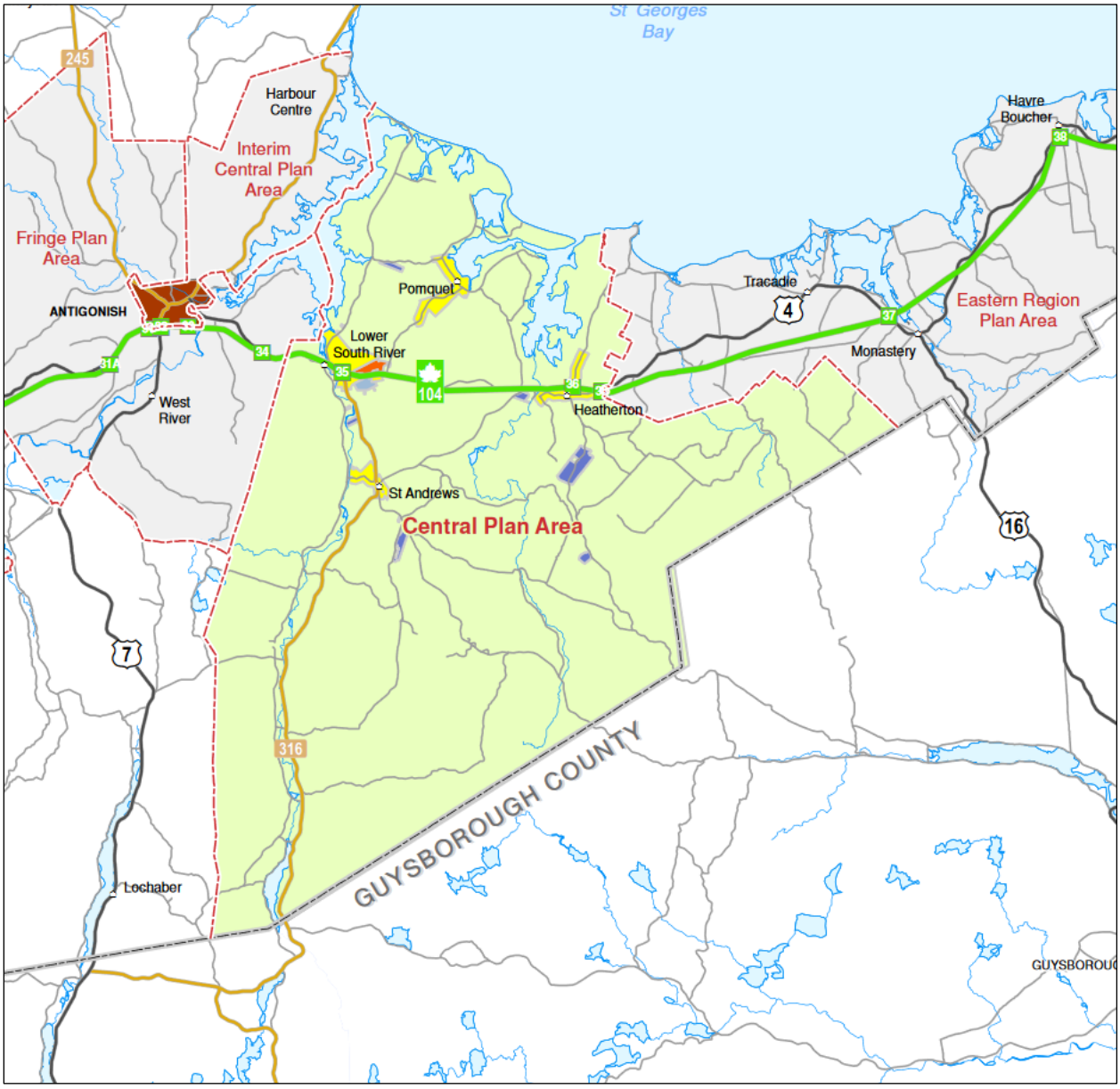
> . . . Council does not intend to prohibit all residential buildings in the Central Antigonish Plan Area on farmland, as concern has been raised about limiting the development rights of farmers who may wish to develop part of their lands in the future for uses other than agricultural ones. (MCA, 2013a, p. 19)

In response to our findings, the MCA stated its belief that the council acts within the province's legislative framework and policies and by-laws that it has created for itself. As such, it wishes to maintain flexibility outside the SPI (Interview #4).

The Central Antigonish Area Advisory Committee also does not appear to play an active role in accommodating multiple interests around farmland protection. Nicol (2006) notes that the MCA does not have a strong history of land use planning in general, including in coastal protection. The planning system in place in the MCA may be contributing to the fragmentation of farmland in rural areas, especially close to the coast along the Northumberland Strait, Saint Georges Bay, and Lochaber (three areas without planning in place), as well as from urban encroachment from the Town of Antigonish into the MCA (Interview #6).

Our selected case study of an actual land use decision represents a controversial example of rural fragmentation in the Eastern Region Plan Area, a neighboring plan area to the Central Antigonish District (see Map 5, top right). A farmer in Tracadie, on St. Georges Bay, applied to rezone parts of his agricultural land from Rural (R-1), low impact development, to Residential Multi-Unit (R-2), higher impact development, to allow for the construction of nine single-unit dwellings on a single parcel of land (7.4 ha/18.3 acres), along with a road. The site was to be a bare-land condomin-

Map 5. Antigonish Central Plan Area, MCA, Nova Scotia, Canada

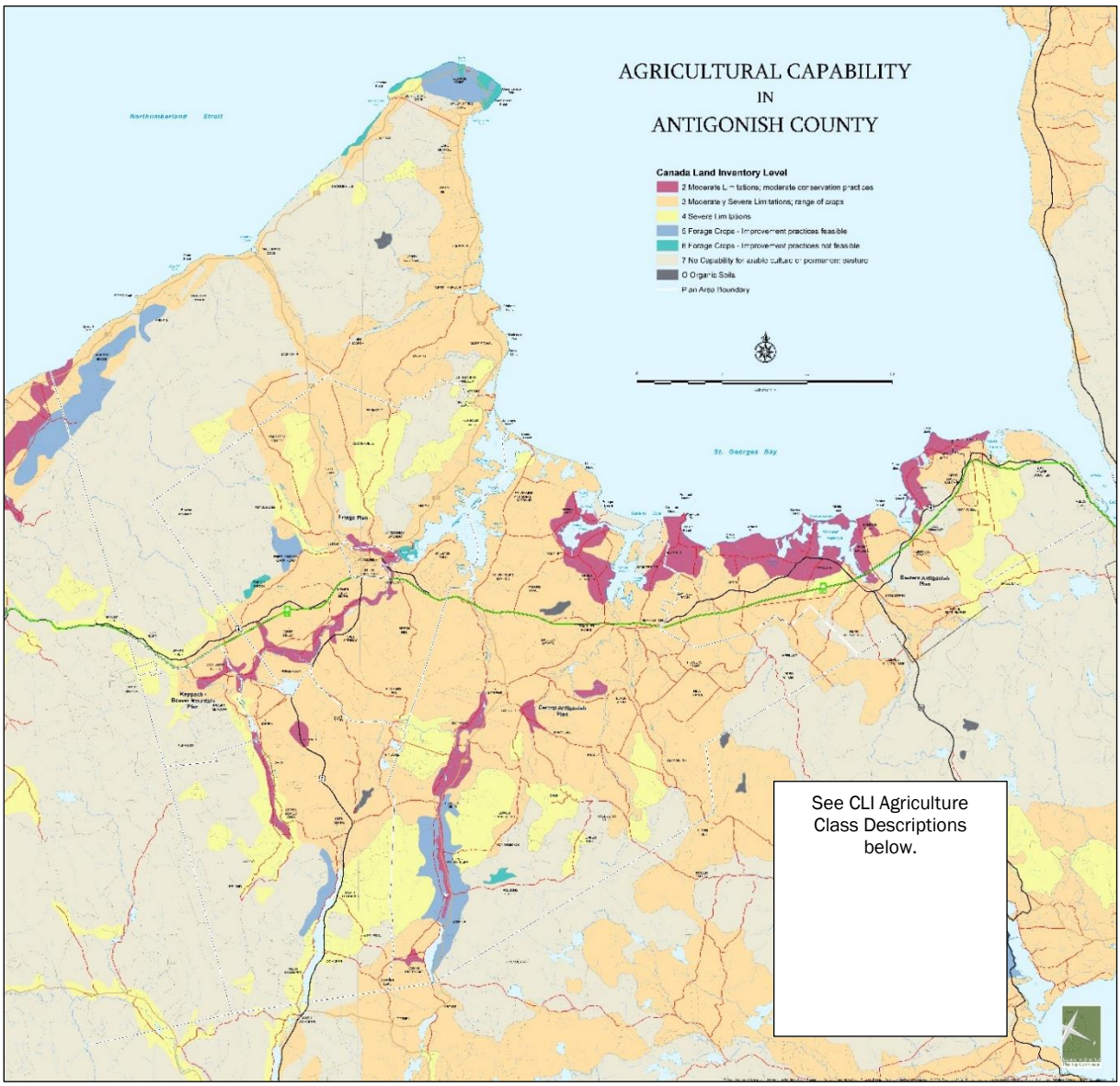


Source: Eastern District Planning Commission (EDPC), 2015.

ium on a former beef farm (EDPC, 2014).

The MCA overwhelmingly passed the rezoning application (there was also apparently a recusal on council due to a conflict of interest). The EDPC, employing a narrow set of criteria based on the weak protection contained in the Eastern Region Plan Area documents, recommended the rezoning request (Interview #3). While the Eastern Plan Area notes the importance of agriculture and the protection of Class 2 and 3 soil (MCA, 1994), there is even less farmland protection language than in the Central Plan Area MPS. There also appeared to have been no discussions in council about this development taking place on Class 2 soil (see the NSDMAH, 2021, Section 250). Coastal cottages are often built on Class 2 farmland (Map 6: see red color classification, which includes the Tracadie area).

Map 6. Agricultural Capability in Antigonish County, Nova Scotia, Canada



- **Class 1** soils have no significant limitations in use for crops. The soils are deep, are well to imperfectly drained, hold moisture well, and in the virgin state were well supplied with plant nutrients. They can be managed and cropped without difficulty. Under good management they are moderately high to high in productivity for a wide range of field crops.
- **Class 2** soils have moderate limitations that restrict the range of crops or require moderate conservation practices. The soils are deep and hold moisture well. Under good management they are moderately high to high in productivity for a fairly wide range of crops.
- **Class 3** soils have moderately severe limitations that restrict the range of crops or require special conservation practices. The limitations are more severe than for Class 2 soils. They affect one or more of the following practices: timing and ease of tillage, planting and harvesting, choice of crops, and method of conservation. Under good management they are fair to moderately high in productivity for a fair range of crops.
- **Class 4** soils have severe limitations that restrict the range of crops or require special conservation practices, or both. The limitations seriously affect one or more of the following practices: timing and ease of tillage, planting and harvesting, choice of crops, and method of conservation. The soils are low to fair in productivity for a fair range of crops but may have high productivity for a specially adapted crop.
- **Class 5** soils have very severe limitations that restrict their capability to producing perennial forage crops, and improvement practices are feasible. The soils are not capable of use for sustained production of annual field crops. The soils are capable of producing native or tame species of perennial forage plants, and may be improved by use of farm machinery. The improvement practices may include clearing of bush, cultivation, seeding, fertilizing or water control.
- **Class 6** soils are capable only of producing perennial forage crops, and improvement practices are not feasible.The soils provide some sustained grazing for farm animals, but the limitations are so severe that improvement by use of farm machinery is impractical, terrain may be unsuitable for use of farm machinery, the soils may not respond to improvement, or the grazing season may be very short.
- **Class 7** soils have no capability for arable culture or permanent pasture. This class also includes rock land, other non-soil areas, and bodies of water too small to show on maps at mapping scale.
- **Class 0:** Organic soils. (Not placed in capability classes.)

Map source: Eastern District Planning Commission (EDPC), 2015.

Plate 1. Farmland for Sale in the Eastern Plan Area, Municipal County of Antigonish, Nova Scotia, Canada, 2015

Source: G. Cameron, 2015.

Plate 2. Farmland for Sale in the Eastern Plan Area, Municipal County of Antigonish, Nova Scotia, Canada, 2015

Source: G. Cameron, 2015.

Local citizens who opposed the MCA's decision invoked the SPIs and called into question the process by which the MCA had reviewed the rezoning application (The Casket, 2013). A farmer living near the proposed site, invoking the "right to farm" for fear of nuisance complaints, appealed to the Utilities and Review Board, which in turn ruled that the MCA did reasonably carry out the intent of the Eastern Plan Area MPS. The province, in its 2013 decision, agreed with the MCA that development pressures in Tracadie did not warrant strict protection given the extensive farmland base in the MCA, but should things change in the future, the MPS should be amended accordingly. The minister subsequently approved the farmer-developer's request according to MGA 1998, Section 208 (3), despite potentially conflicting with the SPI.

Farmland can also be developed without going to the MCA if it is done within the R-1 zone (permissive zoning), a designation that allows structures including one- and two-unit residential development, mobile homes on individual lots, senior citizens' housing, institutional and recreational uses, and generalized commercial uses, in addition to forestry, fishing, and agriculture (MCA, 1994). Plates 1–3 show another housing development project under construction in Tracadie occurring under the R-1 designation, by the same farmer-developer.

One interviewee opined that the province should not have approved the MPS Central, Fringe, and Eastern plans in the first place because of the way these documents were written without exclusive zoning for agricultural land; instead, the province simply signed off on the current MPS plans (Interview #1).

With the Tracadie case in mind, one interviewee said that the MCA appears not to know what to do to make farmland protection a priority:

> It is like the Wild West; you do something until crap happens. … Farmland protection is in uncharted territory. … I don't think municipal politicians are tough enough to enforce it. If I wanted to rezone at council, I don't think I would have such a problem. (Interview #1)

Plate 3. Construction Project on Former Farmland in the Eastern Plan Area, Municipal County of Antigonish, Nova Scotia, Canada, 2015

Source: G. Cameron, 2015.

Another interviewee said that it is status quo in the planning world, and in fact, planners are often just reacting to problems on the ground (Interview #3). Farmland loss is not officially tracked, and hence the extent of the developmental impact on the land base is difficult to ascertain (Interview #3). And while foreign ownership of farmland is not yet a major issue in Nova Scotia, as it is in western Canada, cottage properties dot coastal NS, including the Bras d'Or lakes of Cape Breton and along the Northumberland shore (as seen at the top of Map 3), where weak regulations provide only the chimera of municipal farmland protection (Interview #3). The Tracadie example may be just the tip of the iceberg of land fragmentation in contemporary rural Nova Scotia.

While there are general acknowledgments that municipalities need to be consistent with the SPI in the MGA 1998, their detailed elaboration in the MPS and LUB in the MCA's Central Plan area, and other district plans, are weakly integrated with the provincial MGA 1998. The result is that farmland remains vulnerable to non-agricultural development. Certainly, the MCA's recognition of the historical importance of farming in Antigonish could slow down the politically sensitive process of farmland rezoning. Farming and farmers remain a key pillar of the local economy and community in both town and county. But farmland fragmentation is a generalized problem beyond Antigonish.

Across Nova Scotia's rural municipalities, the SPI is not applied consistently, and too many gaps occur, with planning in the hands of vastly different municipal approaches without strong provincial oversight (Connell, 2016). Further, the SPI does not apply where there is an absence of land use planning, which puts those municipalities who do land use planning at a disadvantage and holds them to a higher standard than those who do not plan. Interestingly, another interviewee said that farmers are pragmatic and would most likely accept more stringent agricultural land use planning systems in Nova Scotia if the SPI were applied across *all* rural municipalities (Interview #2). In general, the interviews revealed that to some extent, each level of government was leaving it to the other level to tighten up oversight of the SPI. Thus, while the MGA 1998 creates a relatively strong provincial legislative framework for protecting farmland, there appeared to be a *de-linking* between the provincial and municipal levels regarding the detailed incorporation of the SPI on agricultural land into municipal planning documents.

The authority of the province to reform and

more dynamically integrate the levels, or to compel municipalities to address the full protection of agricultural land, remains an important tool (see the Williams report noted in Table 1). Since this research was completed, some reforms have been put in place. In 2018 the Nova Scotia government passed Bill 58, which mandates all municipalities to adopt planning and fulfill minimum requirements, apparently within a three-year time frame (NSG, 2018). However, it appears the bill would not compel the MCA itself to strengthen current farmland protection.[2]

Food Sovereignty and Farmland Protection

There were no direct references to the food sovereignty policy regime in any of the MCA's legislative documents. Therefore there is no basis by which to extrapolate food sovereignty issues from the local planning system documentation.

The closest reference to food sovereignty in the MCA is an aspirational, top-down policy piece called the Integrated Community Sustainability Plan (ICSP) (MCA, 2009) (commonly adopted by Canadian municipalities to access extra federal tax funds), which covers the MCA as a whole (Malhotra, 2009) (see the ICSP under Policy in Table 1). The ICSP's highest priorities include lower dependence on food imports, greater availability of local food, local procurement by grocery chains, promotion of local cooperatives, encouragement of community gardens, and enhancement of local meat inspection systems (Malhotra, 2009). Yet there is no tight link between the ICSP and the MCA's planning documents; hence the ICSP document has a limited presence in legislative documents such as the Central Plan Area MPS.

An MCA representative defended the weak legislative presence of food sovereignty by noting that a staff person has been responsible for implementing aspects of the ICSP into the processes of the MCA, including sustainable procurement and alternative energy (Interview #4). While food sovereignty has not been reflected in actual planning documents, the planner added that these perspectives come into other municipal activities such as the support of the farmers markets, the local 4-H Club, and the Antigonish Agricultural Exhibition (Ekistics Planning and Design, 2010). The planner said that the activities above are doing well on their own terms:

> Municipal Council has not seen the need to be that interventionist in regard to introducing food sovereignty. Nor have we been approached to be more interventionist by the community. (Interview #4)

Another interviewee said that food sovereignty would not be an idea that most councilors—the majority having "run-of-the-mill" backgrounds—would even be familiar with (Interview #5). A provincial planner remarked that a shift toward food sovereignty is nowhere in sight, with planning issues being much more basic than that (Interview #3).

The Nova Scotia Federation of Agriculture, a farmers' organization founded in 1895 that represents the majority of agricultural production in NS (and is a member of the Canadian Federation of Agriculture), and the Antigonish Food Security Coalition are the main food sovereignty actors in the broader community of the MCA. We will introduce each in turn and detail their responses to our findings.

The Antigonish/Guysborough (see Map 2) section of the provincial NSFA has approximately 140 members and represents active farmers and farmers wishing to sell their farm properties for non-agricultural use. The divisions surrounding farmland protection can be found in the local branch of the NSFA, including supply management/non-supply management farmers; crops/livestock farmers; big farmers/small farmers; and younger/older farmers (Interview #5). As the NSFA representative put it:

> Does the NSFA support the status quo? Or see land as a retirement "nest-egg"? Or prioritize the future of the next generation and

[2] The first author made a return visit in June 2021 to the two Tracadie sites in the Eastern Plan Area and found little evidence of building construction at either site. However the farmer-developer's nearby farm enterprise and remaining acreage had been listed on the open real estate market.

> the importance of preserving farmland? We must feed our families as businessmen, but at the end of the day we need to look beyond our immediate position. (Interview #5)

The NSFA is caught in the middle, given its mandate to promote farming in general as well as to protect the interests of individual farmers who may want to sell their land at market value prices.

This, of course, is a difficult issue well beyond the MCA. Most farmers are land rich and cash poor and prefer to see their land stay in agricultural production if there were family members or new entrants with the capital to purchase their farms. Short of this, farmers see their farms as their main financial source for retirement. The MCA's view is that land is a farmer's "nest egg," and if they have no successors, then selling their land is seen as one of the remaining viable options; this reality is the challenge facing the county (Interview #4).[3] Another interviewee opined that the government needs to take a stand as to whether land is a resource like oil, or if it is not: "Why should a farmer be asked to preserve a resource that benefits everyone and not be compensated for it?" (Interview #2).

The Provincial NSFA supports a provincially operated compensation program to ensure that farm owners receive adequate compensation for land where land values are adversely affected by agricultural land use restrictions (NSFA, 2012b). But short of establishing a taxpayer-funded program, which may be controversial to the public, it is unclear whether the NSFA can play an authoritative role in stemming farmland loss in Nova Scotia. Moreover, the more food sovereignty–aligned National Farmers Union does not have a district presence in Nova Scotia (NFU, 2020).

As noted in the NSFA data above, conventional agriculture in the MCA has had only limited growth in recent years or has even decreased in certain subsectors, such as cattle ranching, which undoubtedly would contribute to farmers' decisions to parcel and/or sell off their farm properties. The implications of free trade agreements for local food production were raised:

> Free trade has impacted farmland preservation for sure, otherwise people would be making money and not selling farms, or seeing the young people going out West. … We need to get to the root causes of the loss of farmland —beyond farmland preservation itself. (Interview #6)

Several interviewees felt that the province should reconsider how current agricultural policy, broadly speaking, could better serve the public interest in farmland protection.

Optimism was also expressed. The NSFA representative said that there is a change in how people think about the local agricultural land base. People in the Town of Antigonish like the idea of local food, farmers markets, organic produce, etc., and that even conventional farms have been switching to organic crops and grass-fed beef. He mentioned a neighbor, hitherto a conventional farmer, who now has grass-fed cattle, sheep, and pigs on fields. This would have been unthinkable 20 years ago but is more common today (Interview #5).

An interviewee explicitly linked supply management to food sovereignty, bringing government agricultural policy into focus, when they articulated the following opinion:

> It [supply management] keeps production, distribution, and consumption local. So many people are connected to the supply chain like trucks, processing, and there are no booms and busts like oil. Milk is steady. (Interview #5)

Canadian scholars have also explored food sovereignty's application to supply management since it protects family farms and restricts unnecessary imports. Reforms have been suggested concerning new entrants into the supply-managed sectors (Desmarais & Wittman, 2014). Mount's

[3] A close relative of the first author from the Town of Antigonish colloquially quipped that it is hard to control farmland sell-off, because at the end of the day a farmer wants to get the highest price for his land and then hope someone looks after him in an old age home (informal discussion, June 2015).

(2017) study of small chicken farmers in Ontario showed successful integration into the supply management system.

The Antigonish Food Security Coalition (AFSC), formed in 2009, covers both the Town of Antigonish and the MCA; it has provincial, municipal, and university (St. FXU) representation. As part of a wider town-based network called Sustainable Antigonish, the AFSC advocates for a sustainable food system. Its activities include community kitchens, local food hubs, and a presence at the farmers market. Collaborative efforts have also been made to reach new farmers through an apprenticeship program sponsored by the Sisters of St. Martha, a Catholic religious congregation that mentors people interested in producing food for local restaurants (Interview #6).

There is virtually no mention of agricultural land use planning in the AFSC's otherwise excellent local food system report (AFSC, 2013). And while the AFSC does work with the town council on local food policy, this work is not directly related to farmland protection (Interview #6). The AFSC has little actual influence inside the MCA in respect to agricultural land use planning. This lack of a food sovereignty presence could also be due to the local perception that farmland is plentiful or at least not under immediate threat in the MCA (Interviews #3, #4).

In sum, there was virtually no food sovereignty presence in the governance of the MCA. The NSFA was divided on the issue, and the AFSC had not explicitly connected the local food system to the land base. Small-scale, alternative farmers appeared to be few and far between and not politically organized beyond the farm level in the MCA.

Discussion and Conclusion

We sought to assess the extent to which agricultural land use planning accommodates those societal interests seeking to strengthen food sovereignty in the MCA. Trends on the ground indicate ongoing farmland loss based on private interests in Nova Scotia, while the food sovereignty policy regime remains locked out of government(s). What then are the broader implications of this case study?

This study revealed that food sovereignty does have some societal presence in the MCA. The PFPP process in Canada sought to build links across at least three sets of class contradictions: the producer/consumer connection; the Indigenous/non- Indigenous relationship; and the North/South geopolitical divide: "All of this is needed well before deliberative dialogue can even begin with many of the 'mainstream' policy actors discussed herein" (Andrée et al., 2011, p. 139). However, significant opportunities unique to rural communities may be emerging to develop new social solidarities (Lavallée-Picard, 2016). Evidence from this case study of the MCA revealed elements of, but limitations to, these social linkages.

The producer/consumer connection can be seen in the local support for supply management in the MCA, which jells with Andrée et al.'s (2011) observation that most PFPP actors support the protected sectors. The ICSP's food sovereignty list in the MCA could offer a framework of cooperation between the NSFA and AFSC to better embed food sovereignty measures in the MCA and Town of Antigonish.

The Indigenous/non-Indigenous dichotomy was not a direct focus of this study but bears some commentary. In 2007, the Canadian food sovereignty movement added a seventh pillar (Food as Sacred) to reflect Indigenous understandings of food sovereignty (Shawki, 2015). Home to 13 Mi'kmaw communities, Nova Scotia's Indigenous population constitutes 2.7% of the province's population of approximately 900,000 (Gibson et al., 2015). As elsewhere in Canada, there is also a fraught history with dominant groups and governments in Nova Scotia (Paul, 2006). Yet, at Paqtnkek Mi'kmaw Nation, literally down the road from the Tracadie farmland development in Plates 1–3, a highly respected band councilor spoke on sustainable water and fisheries at Food Secure Canada's 2016 summit in Halifax. Generally speaking, Indigenous food systems and worldviews that value non-agrarian customs could enrich food sovereignty ideas that, to a great extent, remain grounded in private farmland ownership (Kepkiewicz & Dale, 2019).

In regard to the Global South, a tour by Vandana Shiva, a world-renowned Indian scholar-activist, may have raised public consciousness

around food in Nova Scotia (Interview #6). Moreover, the local food movement centered around St. FXU, including its significant international student body, could address farmland protection as part of its emerging strategic thinking on local food security (Interview #6). Nova Scotia residents also average among the highest annual hours of volunteering in Canada, which could be important in building the local food movement in the MCA (Gibson et al., 2015). Collective agrarian initiatives, past and present, also offer possibilities. The legacy (and limitations) of the Antigonish Movement—an early 20th century Catholic-led social movement of fishers', workers', and farmers' cooperatives and study clubs—along with the staying power of both conventional and "new" agricultural cooperatives today, could guide 21st century food system transformation in Nova Scotia (Cameron & Hanavan, 2014).

Despite these grassroots developments in the MCA, the food sovereignty policy regime does not yet represent a nascent social movement. Lavallée-Picard's (2016) case studies found a similar social scape in rural Saint-Camille (Québec) and Salt Spring Island (British-Columbia): a mixture of dairy, conventional, and some alternative farms. These two sites exhibited a greater degree of social movement–building as encapsulated in solidarity cooperatives, community gardens, land trusts, farm centers, and conventional farmers, all organized and committed to rebooting local agricultural systems (Lavallée-Picard, 2016). Yet even the Québec and British Columbia initiatives fell short in building "food sovereignty planning" into local municipal governance (Lavallée-Picard, 2016) in contexts where provincial farmland protection and local rural solidarity were far stronger than in Nova Scotia (Connell et al., 2019).

Across Canada, food sovereignty ideas remain largely confined to public narratives around local food, social movement mobilization, or lobbying of the *actually existing* Canadian state. For instance, there have been calls for state-based institutionalization of food sovereignty principles into public policy to support the rights of small-scale farmers, fishers, and Indigenous peoples (Wittman, 2015). However, food sovereignty's "messiness" may not be due only to integration challenges across institutional scales of the state, but also to its weak presence as an embedded policy regime (Jochim & May, 2010). A supply management "2.0," as raised in our findings, in effect a fusion of Keynesian and food sovereignty principles, would find little traction either provincially or federally where market liberal ideas predominate in the corridors of power (Metzger, 2017).

Food sovereignty has been critiqued for its complexity, romanticism, populism, lack of clarity, and need to do more (Desmarais, 2015). We would further add the urgency of "bringing back the (Canadian) state" as another gap, echoing Vergara-Camus and Kay's (2017) reminder of the state's potentially central role for food sovereignty's prospects. While we have seen the nascent presence of a food sovereignty policy regime in rural Canada, the reality is that local food systems rarely meet the ideal form envisioned by food sovereignty proponents; localization of different policy regime mixtures alone may not lead to food sovereignty (Robbins, 2015).

State power (re)creates institutional forms, markets, and property relations in the countryside. If fledgling food sovereignty forms are to truly take root, then food sovereignty's proponents should consider, among other possibilities, the transformative potential of a democratic state to channel the fiscal capacity of public policy toward national food self-reliance, working in tandem with a broader *inward* convergence of the national economy itself. Most critically, political coalition-building may be necessary to embed food sovereignty ideas and actors at all government levels to effect alternative policy pathways.

Whether it is called food sovereignty or something else, a new agricultural paradigm built on consensus, combining pressure from civil society with representation in government(s), could decisively strengthen the political and economic context for long-term farmland protection in Canada.

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"Not a new pattern": Black farmers' perspectives on barriers to participating in federal farm programs

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Abstract

Although there are more opportunities and revamped avenues for socially disadvantaged farmers to participate in federal agricultural program since *Pigford v. Glickman*, the first Black farmer class action lawsuit against USDA and subsequent billion dollar settlement, there is not a lot of scholarly research on Black farmers' perspectives and experiences in accessing and using these programs today. Using data from nine focus groups in Mississippi with 89 Black farmers, we find that Black farmers and ranchers identify several barriers to program participation, namely communication about programs and problems with the application and approval process, including a lack of standardization and transparency. Inter-

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woven throughout the discussions of barriers were conversations about racial and gender discrimination, with producers soundly in agreement that the former persists, and the latter is an issue. This research informs our understandings of Black farmers' experiences of how racial hierarchies and networks continue to shape their ability to access and participate in federal farm programs; policy recommendations are provided.

Keywords
Socially Disadvantaged Farmers, Black Farmers, Federal Farm Programs, USDA, Race, Agriculture, Black Agrarianism, Rural Development

Introduction

Census of Agriculture data show that agricultural production remains an industry populated and dominated by White men (U.S. Department of Agriculture [USDA], 2014a). In addition to only making up a minor sector of the industry, Black farm operators, on average, have smaller farms, incomes, and smaller amounts of government payments and loans when compared to White farmers (Jones, 1994; USDA, 2019b). USDA refers to these producers—Black farmers—as socially disadvantaged farmers and ranchers.[1]

In studying Black farmers and ranchers,[2] scholars have focused on the skewed demographics in agriculture (Horst & Marion, 2019; Luster & Barkley, 2011; Molnar et al., 1988), the relationship between heir property and race (Balvanz et al., 2016; Dyer & Bailey, 2009; Gilbert et al., 2002), Black farmers' relationship with USDA (Cowan & Feder, 2013; Dishongh & Worthen, 1991; Tyler & Moore, 2013; Tyler et al., 2014) and the need for structural and practical changes in agriculture and federal farm programs (Brown et al., 1994; Grant et al., 2012). There is also an existing and growing body of research highlighting the works of resistance, activism, and pursuits of justice through agriculture and food systems by farmers of color (Alkon & Agyeman, 2011; Thompson, 2011; White, 2018). Black farmers' current perspectives on new and existing barriers to participation in USDA farm programs is a topic that is less explored in peer-reviewed sociological literature. While general impediments stemming from structural racism are often referred to abstractly in research, little contemporary scholarship empirically addresses the specific barriers after the creation of the Office of Civil Rights at USDA in 2002 and amid USDA's ongoing efforts to improve outreach efforts to Black farmers during the last decade after the advent of funding for the Office of Advocacy and Outreach in the 2008 farm bill.

Hence, the aims of this research are to first understand if there are any current barriers to participation in USDA farm programs for Black farmers, and secondly, if so, what some of the barriers they encounter are when applying for and using federal agricultural programs. To do this, we focus specifically on USDA conservation programs administered by the Natural Resource Conservation Service (NRCS). Through data from nine focus groups with 89 Black producers in Mississippi, the findings of this research describe the presence of multiple, ongoing barriers to participation in federal farm programs for Black farmers and ranchers.

Background

Federal Farm Conservation Programs

To fund the various programs administered by USDA, the U.S. Congress passes the farm bill every five years (Johnson & Monke, 2019). Title II of the farm bill focuses on conservation programs. First included in the Food Security Act of 1985 (the 1985 farm bill), conservation programs now make up an important part of the farm bill spending (Stubbs, 2016). According to the 2021 USDA budget summary, farm bill allocation for FY 2021 conservation programs under the Natural Resource Conservation Service (NRCS) is US $3,958 million (USDA, 2021). The USDA's original conservation

[1] In some portions of the farm bill, the group definition of socially disadvantaged farmer or producer includes women. In this paper, we are explicitly only focusing on the experiences and perspectives of Black men and women who farm or ranch.
[2] Because the individuals at each focus group would use different terms to describe themselves—rancher, farmer, producer, farm operator—we also use the terms interchangeably in this paper.

programs focused on soil erosion and water quality and quantity issues, whereas the current farm bill also includes conservation provisions for air quality, wetlands restoration and protection, energy efficiency, wildlife habitat, and sustainable agriculture (Stubbs, 2016, 2017). Although the Farm Service Agency (FSA), a subagency of USDA, oversees the Conservation Reserve Program, a different subagency, the NRCS, administers the vast majority of USDA's conservation programs.

Whereas previous conservations programs were heralded for their environmental benefits alone, current conservation programs are a tool of risk management and a provider of supplemental farm income (Center for Rural Affairs, 2017). Participation in conservation programs is voluntary but encouraged (Stubbs, 2010). Because the ability to secure financial capital and mitigate risk is often difficult for producers, access to conservation program funding is extremely important for disadvantaged producers to be successful in their farming operations during periods of instability.

Agency Structure and Program Application Process

Like several other USDA subagencies, NRCS is decentralized and has field offices in almost every county in the U.S. General agricultural conservation program priorities are decided at a national level and fashioned into a unified strategic plan (USDA, 2011). Specific program funding priorities are not made at the national level. The majority of administrative and programmatic funding decisions are decided on a local, regional, or state level with input from specific local committees of farmers and NRCS staff (Jackson Lewis LLP Corporate Diversity Counseling Group, 2011; Stubbs, 2010).

To apply for a NRCS program, landowners contact their NRCS area conservationist and alert him or her to their interest in participating in conservation programs (Cowan & Johnson, 2008). The landowner then meets with the area conservationist, files the appropriate paperwork, and the area conservationist then informs the landowner of his or her options regarding funding, programs, and a timeline (USDA, 2015). Applications are accepted at any time during the year, but funding decisions are made according to local deadlines (USDA, 2016). Following current NRCS criteria, local area conservationists then score and rank applications before submitting them to the state conservationist for approval (Jackson Lewis LLP Corporate Diversity Counseling Group, 2011).

Farmers and Ranchers and Federal Farm Programs

The 1990 farm bill introduced the term "socially disadvantaged farmers and ranchers" as a category of farmers and producers eligible for benefits from various farm bill programs.[3] USDA has a history of civil rights claims from both producers and its own workforce (U.S. Government Accountability Office [GAO], 2008; Vilsack, 2016). The agency that is supposed to be the "People's Department" is also known as the "last plantation" (USDA, 2010). Since the USDA has a history of grievances related to equal opportunity and civil rights, Congress authorized the creation of the Office of the Assistant Secretary of Civil Rights and the creation of the position of Assistant Secretary of Civil Rights (U.S. GAO, 2012). While the creation of the office alleviated some issues immediately, USDA has had slow or no progress at times on remedying the underrepresentation of famers of color in program enrollment (U.S. GAO, 2008, 2012).

Now acutely aware of the inequalities in agriculture, the U.S. Congress and the USDA have hypothesized that the lack of current Black farmers is a result of a lack of financial resources (USDA, 2014b). Additionally, USDA admits that its history of problematic race relations and gender and racial discrimination could be a factor in the low number of women and individuals of color in agriculture (Daniel, 2007; Hill et al., 2013; Vilsack, 2017). Hence, USDA has created new outreach and support programs specifically for individuals of color and women producers and formed new oversight offices. However, the funding disparities between

[3] In Section 2501(e)(2) of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 USC 2279(e)(2)), a socially disadvantaged farmer or rancher (SDA) is defined as a farmer or rancher who is a member of a "Socially Disadvantaged Group." For a history of the changes to this definition and how USDA uses the term, please see "Defining a Socially Disadvantaged Farmer and Rancher (SDFR): In Brief" (Congressional Research Service, 2021).

socially disadvantaged producers and their White peers remain.

A few scholars have considered agricultural programs and race or gender collectively (Brown et al., 1994; Johnson & Ready, 2017; Molnar et al., 2001; Tyler & Moore, 2013); however, few works have specifically focused on Black producers and conservation funding via the Natural Resource Conservation Service (NRCS) programs, as this study does. Prior to the creation of the Office of Civil Rights and the Office of Advocacy and Outreach at USDA, Dishongh and Worthen (1991) conducted research with Black farmers in Florida regarding their perspectives on NRCS, finding the need for greater accessibility of programs and more outreach initiatives. Only one recent government report examines the barriers for socially disadvantaged and limited resource farmers' enrollment in NRCS agricultural programs (Jackson Lewis LLP Corporate Diversity Counseling Group, 2011). The lack of focus on NRCS programs from the literature limits understanding of agriculture policy because NRCS administers the majority of the farm programs for conservation, small crops, and livestock. This is important because a vast majority of Black farmers and socially disadvantaged producers produce small crops and livestock, not traditional large-scale grain and oilseed crops.

Setting

Unlike many other industries, agriculture is deeply connected to and dependent on place. Historical, political, economic, social, and physiological factors all influence agricultural production and the use of federal farm programs in a specific place. Here, we argue for the importance of understanding barriers in connection with a specific place—Mississippi—and highlight how examining the experiences of Black producers in Mississippi is relevant to our understanding of barriers in other places.

Unlike other states that have large manufacturing or service industries that employ the majority of their state's workforce, agriculture is Mississippi's primary economic activity. Each year, agriculture adds over US$16.4 billion into the state's economy (Mississippi State University, 2018). Nearly one-third of Mississippi's workforce works directly and indirectly in agriculture, and the industry produces 22% of the state's income (Mississippi Department of Agriculture, 2018). Poultry and eggs combine to make Mississippi's top commodity by value, with forestry, soybeans, cotton, corn, cattle, catfish, sweet potatoes, swine, hay, horticultural crops, and rice rounding out the state's major 12 crops—all with production values of more than US$100 million (Mississippi Department of Agriculture, 2018). Distinct from other states that produce a less diverse array of commodities and have fewer types of farm programs, Mississippi produces a variety of highly valued crops. No single commodity or commodity group dominates farm program decision-making or the state's political, economic, and social landscape.

Mississippi is a very diverse state and is currently undergoing demographic shifts. Mississippi has a population of nearly three million; 59.3% of the state's citizens identify as White, 37.7% identify as Black, and 3% identify as Native American, Hispanic or Latinx, Pacific Islander, or a combination of more than race or ethnicity (U.S. Census Bureau, 2017). As Stuesse (2016) stresses, it is important to examine the presence and lack of presence of changes in places like Mississippi where there is racial diversity in addition to well-known and ingrained racial hierarchies.

Historical Problems and Ongoing Efforts

Mississippi agriculture has been and continues to be controlled by those in positions of privilege (Grim, 2017). Just as those in positions of authority routinely silenced socially disadvantaged producers' voices on the federal policy level, local and statewide agricultural organizations also excluded women and farmers of color from their gatherings and actively worked to limit the influence of women and farmers of color in their local communities and in the statewide political sphere (Reynolds, 2002). In addition to political and organizational discrimination in agriculture in Mississippi, there are numerous historical works that recount the discriminatory practices that individual producers faced in the past (Cowan & Feder, 2013; Daniel, 2013).

As a result of the agency's problematic history, USDA has focused its efforts on rectifying civil

rights issues nationally (USDA, 2010; Vilsack, 2016, 2017) and has made specific geographic locations—Mississippi included—the home of pilot projects and in-depth interviews by the Office of Civil Rights in the past (Jackson Lewis LLP Corporate Diversity Counseling Group, 2011; USDA, 2016). Consequently, much is known about Mississippi historically; however, less is known about Black producers' experiences accessing federal programs today.

Current Disparities in Agriculture

Of the 34,988 farms in Mississippi, only 7.02% are owned by Black farmers (USDA, 2019a). The disparities are greater when examining what each farm looks like and what it receives from USDA. White farmers in Mississippi receive 94% of the federal farm payments, with each White-owned farm averaging US$16,130 in farm program payments (USDA, 2019a). Black-owned farms in Mississippi receive on average US$7,600 in farm program payments—only 47% of White-owned farms' average (USDA, 2019a). The gaps between White and Black farmers found in Mississippi mirror those found nationally; however, the inequalities are larger in Mississippi than in most states (USDA, 2019b).

Applied Research Methods

Qualitative methods allow for exploration of complex processes (Denzin & Lincoln, 2011). In traditional sociological research, focus groups have been research outlets to collect and validate individuals' perspectives and experiences in a group setting that emphasizes empowerment through the engagement of marginalized voices (Denzin & Lincoln, 2011; Kamberelis & Dimitriadis, 2011). This research builds on that tradition through focus groups with socially disadvantaged farmers closely centering on the research participants' point of view, examining the constraints at play in their lives, and providing robust descriptions of the process(es) influencing their ability to pursue and participate in government agricultural programs through NRCS.

Producers were recruited as focus group participants if they met the following criteria: active producer (sell at least US$100 of agricultural products annually), Mississippi resident, over 18 years old, and a member of a socially disadvantaged group under USDA guidelines (see Section 2501(e)(2) of the Food, Agriculture, Conservation and Trade Act of 1990) or worked in the agriculture industry with socially disadvantaged producers and were themselves Black and past producers. Focus groups were conducted in six of the eight Mississippi economic regions,[4] and all the participants could be classified as one of the following: members of a preexisting regional food hub, loosely connected preexisting agriculture groups, formal agricultural organizations, and individuals with no formal group ties.

Nine focus groups were held across the state with 89 participants in total (66 Black men, 23 Black women) in 2017. Focus groups were conducted at the time and in a neutral location of the participants' choosing. The focus groups lasted 45 to 90 minutes and were recorded with the participants' consent. To allow for the research participants to interject when they felt it was necessary and for the interviewer to ask follow-up, probing questions when needed, focus groups were conducted in a semistructured format.

Questions used in the focus groups elicited information about participant's past experiences, allowing us to discover their meaning-making process around why they farm, their participation or lack of participation in agricultural organizations, their experiences or lack of experiences in applying for and receiving USDA grants and loans, and, finally, their perceptions of the usefulness or lack of usefulness of their social network in the agricultural community. After the conclusion of the focus groups, all the discussions were transcribed and uploaded into MAXQDA Plus (VERBI Software, 2019), a software program used for qualitative coding and analyses. Using a constructivist grounded theory approach, the first author conducted open and selective coding, moving between coding phases throughout the data analysis process

[4] The eight Mississippi economic regions as designated by the Mississippi Regional Economic Analysis Project are Northwest, Northeast, Delta, East Central, Capital, Southwest, Pine Belt and Coast (Momentum Mississippi Map, 2017).

(Thornberg & Charmaz, 2014). The aim of each part of the coding and analysis process was to compare codes and data and vice versa in developing categories and concepts, leading to the emergence of key themes (Charmaz, 2006, 2011).

Results

Of the 89 focus group participants, the vast majority described themselves small to medium-sized farmers or producers, with 79.8% owning their own land. Over three-fourths (76.2%) of the participants are at least second-generation farmers and 62.1% had attended college. Many have mixed crop and livestock operations, growing vegetables and goats or beef cattle. Almost all the participants had at least some knowledge of USDA and NRCS, and many had previously applied for or participated in programs administered by USDA.

We found that the overwhelmingly majority of Black farmers we spoke with see many existing and ongoing barriers to participating in NRCS programs. The following sections detail the farmers' discussions on the key impediments—communication, transparency, and uniformity—that farmers considered existing, and ongoing barriers to their successful access and use of NRCS programs. After discussing these specific barriers, we present the farmers' general assessments of racial and gender discrimination.

Barrier 1: Lack of Knowledge about Programs and Poor Communications

While USDA has a vast list of programs available to producers, almost all farmers shared that a central barrier to using these programs was their lack of knowledge about them. One producer summed this up by saying:

> NRCS, yeah, I think it's just a lot of unawareness of what is out there to these rural minority communities probably because the population is just not aware that these offices do these type programs or have these type cost-share type programs, and I've mentioned that to people about cost share assistance through NRCS, forestry commission and reservation, and they're like, oh they do that, they just don't understand. I guess it's just a lack of marketing of what these agencies do out in the rural and minority communities. (Group 8:242).

At a different meeting, another farm operator echoed the same sentiment, stating that he felt the lack of marketing was a problem for both USDA and producers:

> . . . There's a group of people that do not know about these programs, and so what is the responsibility of USDA in terms of getting the information out for people to know? Our names are there! We could be on a mailing list if there such a newsletter or mailing list or something going out. But then there's hundreds of other people out there that's not on any list! And they don't get to know unless we share by word of mouth. So, it seems that there is some responsibility for USDA in order to communicate because these programs are for those people in agriculture production. (Group 5:163)

In a lengthy conversation about USDA's communication methods, producers repeated the same sentiment: "There are programs we don't know about" (Group 1:317). The "we" he referred to was not farmers in general; "we" specifically meant Black farmers. Black famers argued that USDA's communications efforts are lackluster at best. Producers collectively argued that without better communications, via paper or electronic means, USDA is not able to serve farmers well or equitably. Unless producers know about the availability of the programs, the current well-intended new policies are useless to them. For the focus group participants, USDA's inability to reach farmers with the information of the programs was an initial hurdle.

Barrier 2: Lack of Transparency

In addition to being critical of USDA's communications and marketing outreach efforts, the producers repeatedly expressed a concern with the lack of transparency at USDA. Specifically, they shared concerns regarding the availability of programs, application process for programs, and approval of programs when they contacted or visited a NRCS

office. Numerous producers specifically used the word "hidden" referring to their experiences trying to learn about or apply to programs.

Transparency in the availability of programs

When discussing the difficulty of learning about programs when visiting a county office, one producer exclaimed: "It's like it's hidden unless you push the right button" (Group 10:112). Similar to USDA's inadequate communications efforts, producers shared that in-office interpersonal communications lacked clarity and transparency.

One focus group participant elaborated on how the availability of programs lacks transparency, stating:

> I just don't think the information is there, necessarily, unless you know what you're looking for that little, there's a missing link there. It's not that you go in, and they say "Well, we have a lot of programs available! What are you interested in?" or "Let me see what type of farm you have." Or, "Let me have the opportunity to go out to your farm and see what we can help you with!" I don't necessarily see that. (Group 3:266)

A woman producer further shared that she believed you needed to be extremely direct to overcome the lack of transparency:

> Some of the offices that I have been in, like he was saying, you have to have a direct question. If you just going in there, and you are wanting general information—they don't really voluntarily give you anything. So unless you can be specific, you get the run-around. If you go in there almost with a list, and say "look I have already written this down what can you help me with on this list?" you stand a little bit better of a chance. But, if you go in there saying, you know, "I am new. I interested. I was wondering what all programs you have available?" they may tell you "one," knowing all along there is a list over here *this* long. Now I have sort of a problem with that and their customer service skills. (Group 11:94)

Likewise, at a separate focus group meeting one farmer recalled how he went into his local office and asked specific questions about the availability of funding for certain programs. He wanted county-specific information—information only readily available in the county office. The producer shared his questions with the focus group:

> I want to know how much our county gets for money for things for farms any kind of subsidy anything. I want to know what they're getting. I want to know where the money's going. I want to know why the farmers who need it are not getting it …because everything here is *hidden*. (Group 4:237)

Answering him, another producer said:

> Yeah, you don't know what you get! You might go in there, "I need to plant 10 acres of rye grass." He says, "oh, we out of money." But, how much money did you have? (Group 4:240)

At every focus group, Black farmers shared stories of learning about certain programs, only to call or walk in the office and be told "no funding was available," which led them to conclude, as one man summed up, "discrimination is alive and well … but it is very hidden to a point" (Group 1:235).

Understandably, farmers across the focus groups shared their recurrent disappointment in trying to work in the local office to learn about the availability of programs, program deadlines, and program funding, only to feel more frustrated when they finished than before they began. Hence, producers shared that now they often "don't bother" (Group 1:274) or have "given up" (Group 4:233) when trying to learn about programs in-office because the information is just "hidden" to them due to their race, gender, or their intersection.

Transparency in the application process

While several producers wanted information on how the funding process worked and what programs were available, others mentioned transpar-

ency problems during the application process. Describing the application process, one producer said:

> It was awful, it was intrusive, it was absolutely awful and to be treated as if, you know, I don't know. It's just funny when you're trying to get services from somebody and somebody's sitting behind a table who's a farmer who *know*s the deal, right? These people who sit behind the desks, they're farmers—they own acreage, they own livestock and they do this stuff—so when you come in not knowing exactly what it is that you need, well, they could easily bridge that for you, be like "this is what you're talking about, so then let me give you a picture of how this really works" and then explain it to you. (Group 10:140)

This producer stressed that the individual in the office "knows the deal," yet failed to help the producer make sense of it. He emphasized how he and the individual working in the office are similar—they are all farmers—and yet this person would not help him as a Black producer. Transparency in the process—the "picture of how it really works," as the producer stated—is what the producers and farmers need. While some producers shared that there was little to no transparency in the application process, others stated that things were clear only to a point.

Even when asking specific questions, farmers shared that they felt they were given unintelligible or non-answers about navigating the application steps. This lack of transparency about the process serves to discourage producers over time. A farm operator described her frustrations:

> We went in for one service and it was like we were dragged through the mud for three months, but we don't have that kind of time to go in and out of an office. We have crops! We have harvesting, planting. There's so much to do, and to waste three months of your time when that person knows from the beginning what you need to accomplish and fulfill that application to get your request. We felt like we were dragged through the mud for three months. (Group 10:137)

The focus group participants frequently accentuated that they were not sure exactly how the process worked. They often wanted more information on how the funding and application process functioned, but when they asked questions, they still felt everything was "hidden." Similar to producers who became discouraged when trying to gain answers about available programs, producers shared that they sometimes quit during the application process because the lack of transparency and openness made it not worth "fooling with it" (Group 4:142).

Transparency in the approval process

Sharing his frustration with the approval process and the lack of transparency in the ranking process, whereby applications are scored according to criteria created by the NRCS and top-scoring applications are awarded funding, one producer stated that the employees specifically do "hidden type things" (Group 1:217) when they fail to share with producers how the ranking process works and how to increase their rankings. The majority of other producers at the focus groups agreed. They characterized the approval process as murky at best and infuriating at worst.

At one focus group, when the interviewer asked participants to share the process of working toward an application approval with the local office, a farmer laughed, turned to the focus group leader, and replied, "Can *you* help us understand why?" The producers largely were unaware of why their applications were not approved or how they were ranked within their county. One farmer described the frustration: "And they got a point system. If you a vet, you get so many points. Or, if you a first-time farmer, so I don't know exactly how, I don't know who else apply, but when I apply—why I didn't get it, I don't know" (Group 7:206).

Others also disclosed that they did not understand the points system. For example, one man shared, "I have got practice for NRCS. And, I have been turned down. I have been turned down for more practices than I got. Mostly because I didn't

have enough points, they say, but, overall, I guess it's all right, but I could be better" (Group 9:89). Though he phrased it politely—"enough points, they say"—this producer's comments, like others', highlights that he is unfamiliar with why his application was denied. He consequently does not know how to improve his application for future rounds of programs.

Barrier 3: Lack of Uniformity

In addition to communication and transparency being central barriers, producers also articulated that the lack of uniformity among USDA offices and program offerings across counties was frustrating. Because the communications from USDA are limited and the program information, program application, and program approval process are not transparent, local offices operate with a great deal of autonomy, for better or for worse, when it comes to the experiences of Black farmers and producers. The focus group participants spent a lengthy amount of time discussing the variances between county offices and offerings. One farmer shared:

> I would clone the process and the people in the office [laughs] so it would be the same. Every office is different, you know. I've been blessed … and [in] other offices, people have told horror stories. … [So I'd make changes] so that every office would be the same and they know how to treat people, the procedure, all procedures are the same information, if that were possible. (Group 5:217)

Uniformity across offices in specific program offerings and deadlines, they stressed, would help with communication and transparency issues. Nevertheless, several producers did not have high hopes that it would change because of the longevity of the dysfunction between federal policy and the local dissemination of resources:

> Well, for all federal program[s]—that's the way it is. It's great at the federal level, and I'm sure even at the state level, but when it gets out in the field—it never gets carried out. You know, it worked its ways back in the '50s, '60s, '70s, 80s, and in a way it's still happening today to a large degree. (Group 10:170)

It doesn't get carried out well on the local level because:

> But the wall has always been when you walk in, "we don't have any money." We don't have any money for that and you would see wells going up all over the place and how are all these people getting wells but we don't have any money. And so that's changing slowly but because it's a county system it just depends on the county in which you live. (Group 2:96)

Numerous focus group participants acknowledged that when considering the vast differences in experiences between county offices, they were often unsure if their office was staffed with "lazy workers" who "just purely don't know" (Group 7:254) or individuals discriminating against them due to their gender or race or the intersection of the two.

Barriers, Bias, and Discrimination

The focus group participants discussed these three barriers and challenges in their efforts to secure NRCS conservation funding. When talking about their goals of pursuing financial stability and environmental sustainability, farmers mused that to accomplish those things, they needed the assistance of USDA. However, farmers consistently shared that they had difficulty navigating the process—even *after* the creation of programs for socially disadvantaged producers. One producer remarked that he just wanted someone to "take a chance" on him (Group 4:252). In talking about his wish for that chance, he stated that he wanted to try to impress this upon the USDA employees and wished that they'd say back to him in response:

> "Yeah! Like, this guy we know can pay back this loan. His credit's not the best, but we're going to help him out because it's going to help him in the long run by increasing his credit. Plus if he fails on it, he can sell the tractor. It's not like it's going to go anywhere." But, I mean the thing is you're giving this man

> a chance to improve his family, to improve his life, that's what America is supposed to be about. (Group 4:253)

America, he stresses, is supposed to be a meritocracy. It is supposed to be a fair place with no barriers for those who work hard—the American Dream. Instead, he implies that it isn't. It is supposed to be that way, but falls short in numerous ways. Although the producers focused on communication, transparency, and uniformity, sometimes without directly referencing their race or gender, their conversations regarding barriers would slowly shift to structural discussions of their perspectives on racial and gender discrimination occurring within the process.

Racial Bias and Discrimination

Racial discrimination was implied and discussed by a farmer who said it was "not a new pattern" and that "it's *still* happening" (Group 10:119-170). Farmers stressed that even with changes, the culture at USDA has not changed. One producer summed up the sentiment when he shared that dealings with USDA went "well right after that Black farmer lawsuit, but right after that, it kind of went right back to the way it used to be" (Group 5:59).

Some farmers argued strongly that the variance in Black farmers' and producers' experiences at local offices was due to the personnel makeup of the office and their autonomy. The producer stated, "Well, obviously, that's why minorit[ies] and women are underserved because the people behind the desk would rather not give us the services" (Group 10:116). Others were even more direct in their arguments. When asked about the differences between offices and if he thought discrimination or bias occurred or occurs in some of them, one older producer shared:

> I just can't answer it. I tell you what—if I could change back the hand of time, I'll let you be Black for a year. And then *I'll be White* and see where I get and where you get. Because, okay, you lived the White life. I have lived the Black life for a long time. Just let me be White for about a year, and you be Black for a year, and you walk in my shoes and then you will see the true picture. Like, NRCS, you walk in there and you, now a Black woman, says "Yes ma'am, I would like apply for this." Well, they are going to say, "Well, uh, sorry! I can't help you." Now knowing that I come in there—a White male—"uh, yes, I would like to apply for a well, I have been registered." [They would reply,] "Oh yeah, we see you registered. Here is a list of the wells. You call us," and I'll get on this list. And they will say "Yeah, sir, you have been approved for a well!" Come out, and they drill you a well. Now, you, you were White, but you Black now. You are doing the same thing I am doing! Come in there and [you] say, "Yes, I would like to get a well." [They'd reply], "Are you registered?" [You'd reply,] "Yes, I am." [They'd then say,] "Well we don't have no money for a well right now, uh, we can put you on the list." You don't hear from nothing! But then *I* get a well. How would that make you feel? So, I mean I can't change the hands of time—it is what it is. …" (Group 2:167)

Many, like the farmer above, fervently argue that if they were White, they would have extremely different experiences when walking into their local office. Another producer put it more mildly when he said that the amount of successful interaction and program approval for a socially disadvantaged farmer or producer was dependent on "the personality of that office" (Group 5:159). His comment was a polite way of indicating that interactions were dependent on how overtly racist or not a person in the office acted when working with farmers of color.

Regardless of the exact reason for the discriminatory treatment, farmers repeatedly argued that the status quo at USDA has not changed. One farmer explained:

> Well, it's not a new pattern, right? I mean this is structural and institutional racism, you know … but it doesn't really make anybody, you know, change legislation. But you can't change heart, and if people are somehow

> deeming you unworthy, then you know, what's your defense against that? (Group 10:119)

Racial discrimination—individual, institutional, and structural—these farmers concluded, is the root cause of the barriers. The barriers stem from the decentralized structure of USDA where farmers are dependent on their local office for information, rather than a centralized system that is not dependent on local personalities, local networks of power, and local committees' decision-making. Though producers' openness in discussions on racial discrimination varied, not a single participant in any of the focus groups vocally disagreed with the perspective that racial discrimination in some fashion exists in some if not all NRCS offices. Conversations on the topic of racial discrimination during the focus groups would drift until they reached suggestions for improvement—namely, making the policies, procedures, programs offered, and practices of each UDSA office uniform and limiting the power of local office personnel and stakeholders as gatekeepers to accessing and participating in programs.

Gender Bias and Discrimination

The focus group participants largely ignored questions on gender and issues overtly related to gender. Although there were a substantial number of women at the focus groups, the conversations predominantly trended toward discussions of racial discrimination, not gender. Nevertheless, there were several women who highlighted the double difficulty of being a woman of color in agriculture. One producer said that even though in theory she should have better "options" when applying for programs, since USDA has specific outreach programs for women and for farmers of color, there are large hurdles:

> The issue that I have is we're not given the option. If I come in and I promise you things and I don't deliver on my promise, I can full understand you not wanting to see me, deal with me, whatever. But when I walk in the door and you have a bias that I am not going to do what I say and you have never seen me, don't know me, don't know anything about me, but your mind is closed when I walk in the door, that is a problem! And, when I walk in the door and you tell me there is no money, and I see ten other people getting the same money that I just asked you for—and the difference is this for me and the fact that your gender is different than my gender, I can put two and two together and come up with four. (Group 2:164)

Just as this woman was confident her gender was a factor in her inability to participate in NRCS programs, other women questioned the salience of gender in comparison to their race. Many women of color were vague in their discussions of gender, musing that "I don't know why" (Group 3:144) it was difficult to work with the staff—Was it their gender or their race, or the intersection of both? Dissecting the intersection of race and gender in interactions with UDSA was complicated for the participants during the focus groups. Nevertheless, none of the participants argued that being a woman in agriculture helped their chances of succeeding in securing government funding. One participant said, "that's a lie!" when asked if being a woman in agriculture helps in overcoming barriers (Group 4:145).

Conclusion

This research provides valuable insight into contemporary discussions of justice in agriculture and Black agrarianism by describing contemporary barriers that farmers of color experience when working to access and participate in federal farm programs. Specifically, we show how Black producers argue that there are still significant barriers to participation in and use of USDA programs, even with new outreach initiatives from USDA and the growing number of farmers of color in the U.S. and amid scholarly and activist calls for change.

Producers argued that they face barriers related to poor communication efforts, a lack of transparency throughout the process, and very little standardization across NRCS offices. Because of the decentralized structure of USDA, in which most programming and funding decisions are made locally, farmers often struggled to navigate local White farming networks and gatekeepers to learn more

about the programs. When applying for the programs, the structure of USDA again was problematic. USDA's local decision-making model limits means that each office is unique and has its own funding priorities, and with little transparency and standardization, Black farmers' ability to compare experiences across offices and programs to identify and remedy problems is limited.

We argue that examining the perspectives of Black producers in a place like Mississippi—racially diverse, agriculture-centric, and a state with a long history of entrenched racial hierarchies—helps us better understand the barriers that Black farmers face in agriculture. We also highlight that these producers who argued to us that things are "hidden" and "there's a lot of unawareness" are not new or beginning farmers with little cultural, social, or human capital. The producers who shared their perspectives with us are well-connected, educated, and stable farmers with years of experience. Even with generational farming histories and college-educated backgrounds as well as new government programs for socially disadvantaged farmers and ranchers, our focus group participants—Black women and men—still shared that they faced significant barriers in accessing government funding. Their perspectives clearly articulate noteworthy barriers to their American Dream in agriculture. The barriers they describe are due to a confluence of historical factors that collectively fashioned and continue to fashion racial and gender biases and discrimination throughout the dissemination of the program information, application, and approval process.

Hence, given the three key barriers (i.e., communication, transparency, and uniformity), and the systemic forms of discrimination highlighted by Black farmers in the focus groups, this study recommends that NRCS continue efforts to work with Black farmers to addresses these impediments. Specifically, we showed that there is a need to improve communication about conservation programs to Black farmers. Strategies to improve communication efforts include: (1) developing close collaborations with community leaders and agricultural organizations because both types of actors can be critical for disseminating information about NRCS programs, deadlines, technical requirements of programs, and administrative processes; (2) implementing additional grassroots outreach strategies that connect *local* producers with *local* NRCS personnel; and (3) developing targeted local, state, and federal communication strategies.

Regarding concerns about transparency and lack of uniformity, NRCS can improve transparency efforts by informing the public about their resource allocation criteria, estimated amount of resources available per round and program, and specifics about the overall decision-making process. USDA and NRCS can also continue their efforts to increase awareness about the need to augment diversity in local committees and maintain current efforts to increase diversity in the workplace to include greater racial and gender diversity in decision-making instances. Overall, the results from this work in Mississippi show the need to continue federal efforts to improve awareness about funding opportunities and guidelines in addition to the current allocation disparities.

This research complements other recent research with Black farmers regarding agriculture and resistance by providing rich descriptions of the barriers that socially disadvantaged producers still face today. While we argue that one of the strengths of this research is its setting, it is also a limitation, as our focus groups were conducted in a very racially diverse state with only Black farmers. Therefore, these assessments of barriers may vary in locations with smaller populations of Black farmers or places with larger populations of Asian, Latinx, Native American, or Pacific Islander farmers and ranchers. Future examinations of producers' experiences using USDA federal farm programs should examine the experiences of Black farmers in less racially diverse locations as well as the experiences of Latinx, Native American, and Pacific Islander farmers and producers. Additionally, future studies of USDA policies and practices should further examine the role that the local office plays in the implementation of policy.

Regardless of the barriers faced, the producers we spoke with stated that they will not give up on their ambitions to farm. One farmer said that that he goes on because a barrier to USDA program participation "doesn't stop you from keep moving forward. You just have to go ahead and do what

you're going to try to do" (Group 10:32). Black producers are "moving ahead," sometimes by themselves, and at other times in concert with other farmers of color creating informal and formal networks to advance Black farmers' participation in federal farm programs and knowledge-sharing to further conservation work on their farms. We are left to wonder: What changes will a new decade bring?

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Effects of experiential food education on local food purchasing and eating behavior

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Abstract

Using self-reported health and economic behaviors, this study explores the extent to which experiential food activities such as cooking new foods and attending farmers markets impact local food consumption, purchasing, and eating behaviors. This longitudinal survey includes pre/post intervention surveys administered to a convenience sample of 55 community members, categorized as "young adults," "adults," and "older adults." The 41-item baseline survey includes closed-ended questions regarding food preference, purchasing

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habits, and general awareness. The 54-item post survey, administered after participating in the study, includes the same closed-ended questions as the pre-survey, as well as open-ended questions regarding participants' perceived impact of the intervention on their behaviors. Data was analyzed with paired t tests, one-way ANOVA, paired proportional analysis using McNemar's Test, Bonferroni correction tests, and normality tests. Survey results show significant positive change ($p<0.001$) in overall eating, preparation, and purchasing behaviors from baseline to post-study. These findings appear to demonstrate that simple, low-cost interventions to engage adults in learning about and experiencing local food can lead to a change in shopping and pro-local eating behaviors.

Keywords
Behavior Change, Consumer Behavior, Experiential Learning, Local Food

Introduction and Literature Review

The number of U.S. farmers markets has increased 395% from 1994 to 2017 (U.S. Department of Agriculture Economic Research Service [USDA ERS], 2017), providing considerable additional access to fresh, healthy, whole foods. Consumers attend farmers markets for a variety of reasons: to buy fresh local food, support the local economy, satisfy concerns about the food supply through direct interaction with vendors, and enjoy the social atmosphere of the markets (Kirby et al., 2007). However, consumers cite concerns about price, location, market days and hours, and demographic homogeneity (Wetherill & Gray, 2015), as reasons for not using farmers markets or seeking out local foods (Jilcott Pitts et al., 2014; McGuirt et al., 2014). Mobile markets have been successfully utilized to overcome the location barrier and increase fruit and vegetable consumption among individuals living in rural communities (Leone et al., 2018).

There are a variety of motivations to engage in local food and farmers markets. Local foods have been promoted effectively through socially based motivations such as price, freshness, market friendliness, and taste (D. Adams & A. Adams, 2011; Wolf et al., 2005). Previous studies show that accessibility and consumer attitudes towards certain foods are the main determinants of whether target audiences purchase local foods (D. Adams & A. Adams, 2010). The social interactions and personal connections that consumers establish with food producers promote consumer willingness to purchase local foods (Carson et al., 2016). Despite increased accessibility to local foods, consumers will choose pre-prepared meals if they are incapable of preparing meals or using food in new ways (Rainbolt et al., 2012).

In previous reports, non-student female farmers market shoppers in a university town (Jilcott Pitts et al., 2013) and adult farmers market shoppers from racially and socioeconomically diverse rural communities (Cromp et al., 2016; Jilcott Pitts et al., 2017; McCormack et al., 2010; McGuirt et al., 2014), reported higher fruit and vegetable intake than non-farmers market shoppers. The magnitude of the difference is appreciable. In a 2017 study, average fruit and vegetable intake was 5.5 ± 2.2 servings/day among market-goers who reported shopping at farmers markets two or more times per week, compared to 4.4 ± 1.7 servings/day for those who reported shopping a few times a year or less (Jilcott Pitts et al., 2017). In some regions, local food consumption has increased per capita through the availability of these food ingredients in restaurants, grocery stores, and school food services with direct sale operations (Kirby et al., 2007). While the use of farmers markets and the purchase of local food in other settings has increased, many people still do not make the choice to eat healthfully. Nutritionists and health promoters have attempted to eliminate gaps between access and choice through education efforts; food producers and economists are advocating for reducing transaction costs, the time and effort needed to make choices or purchases; and for increasing the accessibility of healthier food options. Some of these efforts are focused on teaching individuals how to use daily behaviors to "nudge" themselves into a new routine or experience that provides lasting healthful personal change.

Behavioral economic studies have identified three behavioral biases relevant to food behaviors: present-biased preferences (Engell et al., 1996; Levitz, 1976; Meiselman et al., 1994), visceral fac-

tors such as emotions and drives (Lambert et al., 1991; Shiv & Fedorikhin, 2002), and—most relevant to the present study—status quo bias and default options (Raynor & Wing, 2007; Schachter & Gross, 1968). Status quo bias is a powerful force on individual preferences, leading one to stick with current or default options (Kahneman, 2003) even when transition costs are low or the importance of the decision is great. Samuelson and Zeckhauser (1988) note that status quo bias is consistent with loss aversion, and that it could be psychologically explained by previously made commitments, sunk-cost thinking, cognitive dissonance, a need to feel in control, and regret avoidance. The latter is based on Kahneman and Tversky's (1982) observation that people feel greater regret for bad outcomes that result from new actions taken than for bad consequences that are the consequence of inaction. One vehicle for changing food behavior is "nudging" oneself into a new behavior pattern by changing the environment in which a food choice occurs (Thaler & Sunstein, 2009). For example, the effectiveness of using a change in default options to modify the amount of food consumed has been demonstrated. Rolls (2003) and Rolls et al. (2006) found that decreasing meal portion size led to a reduction in the total amount of food consumed; similar results can be found when reducing sandwich size (Rolls, Roe, & Meengs et al., 2004) and snacks (Rolls, Roe, & Kral et al., 2004). Serving containers also seem to matter: individuals eating M&Ms out of larger containers ate 129% more than those with smaller containers (Marchiori et al., 2012).

In order to change more complex eating behaviors, such as purchasing, preparing, and eating healthier meals from local foods, the individual must relinquish old patterns and adopt new ones (Thaler & Sunstein, 2009). These behavior changes will take more than just written nutrition information or classroom nutrition education to take hold. For example, efforts to improve front-of-package information or add nutrition labeling to restaurant menus have had inconsistent impact on energy intake. Liu et al. (2014) noted that "at best, existing information-provision policies have the potential to modestly influence individuals' food choices" (p. 2).

Experiential learning has shown promise for providing the necessary nudge to change status quo or default options, both for understanding the food system (Maher & Burkhart, 2017) and changing eating behaviors (Reicks et al., 2014). The theory of experiential education posits that acting, experiencing (or feeling), thinking and reflecting act in tandem to create learning (A. Kolb & D. Kolb, 2005). Experiences with food such as tastings, cooking classes, attending farmers markets and talking with farmers, growing and harvesting food, and other food experiences are likely effective at inducing healthy food behavior change because they allow individuals to "reset" their food behaviors. Our hypothesis is that once food experiences have been incorporated into one's life, there is a new status quo.

If one is able to reset food experiences, research suggests that a change in behavior is likely to follow. Based on an association between higher cooking skills and higher vegetable and lower convenience food consumption, Hartmann and her colleagues (2013) suggest that cooking skills may help individuals to meet nutrition guidelines. In other studies, experiential cooking and nutrition education has been shown to increase cooking self-efficacy and vegetable consumption for children in grades 3–8 (Jarpe-Ratner et al., 2016), increase cooking skills and confidence among cooks in African American churches (Condrasky et al., 2013), and has shown promise for improving one or more nutrition-related health behaviors in a review of 28 studies of cooking interventions (Reicks, 2014). Similarly, confidence in cooking vegetables is associated with higher vegetable purchasing for households; teaching these cooking skills may be a useful strategy for increasing fruit and vegetable consumption (Winkler & Turrell, 2009). A study found that young adults who purchased their own food and prepared food at home more often had better diet quality than those who did not (Larson et al., 2006).

Economists and health promoters can learn from each other how to merge efforts to encourage behavior change to support health. Thomson and Ravia (2011) found that behavioral interventions to increase fruit and vegetable intake led to slightly higher mean increase for adult participants (1.13

servings fruit and vegetable intake/day), and concluded that behavior-based interventions alone are not likely to result in the long-term sustained changes in fruit and vegetable intake needed to meet dietary guidelines. They further concluded that nutrition education efforts appear to be more effective at changing eating patterns when they are paired with behavioral economic approaches. In a report addressing the challenges and benefits to participants of following a 100-mile diet for four weeks, Byker et al. (2010) note that a diverse array of both capacity-building and education strategies are needed to bring local food consumption into mainstream behaviors.

Recognizing practical knowledge gained from healthy local food experiences as a potential mechanism for change, we consider the pathway to dietary behavior change through encouraging food experiences with a local food system. The study location supports a thriving local food system with many opportunities to purchase local food at farmers markets and in restaurants and grocery stores. We leveraged this location to ask: Can a simple low-cost intervention to engage adults in learning about, and having direct experiences with healthy local food, lead to changes in thinking about shopping and eating, and perhaps also to more healthful eating practices?

Research Methods

Study Design

In the Asheville, North Carolina, area in the Southeastern United States, where this study was done, there are 10 markets each week in season (April through December), three weekly winter markets, and two holiday markets from November through December. Direct-to-consumer sales of local food in the region grew an astonishing 69% from 2007–2012 (Jackson, 2015) and the number of farms listed in a local food guide for the Western North Carolina and Southern Appalachian regions rose from 211 in 2008 to 603 in 2016 (Perrett et al., 2018).

We utilized a pre-/post-survey design to assess the impact of a local food promotion intervention at the University of North Carolina Asheville (UNCA), a public liberal arts university. The program was designed to engage participants in local food, food system, and healthy food choice-related activities over a 5–month period. The activities involved in the study were open to the entire community; therefore, to conduct the study with a control group would have required recruitment of a comparison community, which was outside the budget for this project. Thus the study relied on a convenience sample in which we assumed that some participants would be unable to attend events, effectively providing a natural experiment or within-population "natural" control group. Once enrolled, participants were asked to complete an online survey via SurveyMonkey and were emailed a newsletter at approximately 2-week intervals announcing upcoming food-related events.[1] A menu of opportunities was provided to participants to allow for the type of libertarian paternalism or freedom of choice described by Thaler and Sunstein (2009). Some of the 31 events were hosted by the researchers and others were scheduled by campus and community groups; events included eight on-campus lectures, eight cooking or gardening classes, five community events related to local food and agriculture, eight food tastings on campus or at local stores, and two food-related film screenings. The newsletters also offered information about both winter and spring tailgate markets in order to promote participant familiarity with the location and hours of area tailgate markets, especially the winter markets. The common element across the experiential learning events was a focus on learning about healthful eating and/or local food availability through cooking, tasting, growing, and discussing food and health. Participants were asked to attend at least one food event during the five–month period and were provided an incentive (a chance to win a gift card to a local market) for completing the post-test survey. Because of a relatively short study period, which facilitated participant recall, we relied on participants to self-report event attendance data for data analysis.

[1] Recruitment material, newsletters, and other materials are available by request from the corresponding author.

Participants and Recruitment Methods

Using a convenience sampling strategy, participants were recruited using posters and through emails sent to faculty, staff, and students of UNCA and its Osher Lifelong Learning Institute (OLLI), a continuing education program for older adults located on campus. Participants were also recruited at seasonal food tastings on campus and at a kick-off event at OLLI. The study was approved with an expedited review by the Institutional Review Board at UNCA. Written consent was obtained from participants.

Overall, 244 individuals expressed interest in the study, of whom 151 enrolled and completed the baseline survey and 79 completed the post survey. While 71 participants filled out both the baseline and post survey, only 55 paired responses were usable for the composite statistical analysis.[2] These responses were grouped into three age categories: college-age and young adults (<25 years), adults (25–59 years), and older adults (>59 years). Table 1 presents demographic data about the 55 participants.

Survey Instruments

A 41-item baseline survey was used to gather information about food preferences, awareness, and purchasing habits. Participants were asked to rate their knowledge about local food procurement, their food shopping, consumption and preparation habits, preferences for local or organically produced food, and dietary restrictions and preferences. The 54-item post-survey included the baseline survey questions plus open-ended questions regarding participant attendance at events and the impacts of attendance on eating and purchasing food. In these questions, participants were asked if they perceived a change in their behavior, and what kinds of changes they perceived.

Data Analysis

In order to test for changes in behaviors, select responses to survey questions were coded using either an ordinal or dichotomous scale as outlined in Table 2. For each participant, composite scores using 12 variables were compiled by calculating the sum of the numeric values associated with each response of the variables chosen for analysis (Table 2). A paired t test was utilized to determine if a change in mean composite scores occurred during the study period. When the data was not normally distributed, a signed rank test was used as the non-parametric equivalent of the paired t test, as the signed rank test does not require normal distribution to determine if the mean change in scores is significant.

Two variable groups were formed representing two distinct types of behavior change: changes in local food purchasing/preparation and health/food choices. The five variables related to local food purchasing/preparation and the five variables related to health/food choices were analyzed separately (Table 2). The internal consistency of these subgroups—in addition to the overall variable grouping—was tested utilizing McDonald's omega, a test that estimates scale reliability (Dunn et al., 2014). The McDonald's omega result for all variables ranged between .7 and .8 for baseline and post-tests, which is

Table 1. Participant Demographics (*n*=55)

Age Group	Number of Participants
College-aged and young adults (<25 years)	13
Adults (25–59 years)	25
Older adults (>59 years)	17
Gender of Participants	
Female	47
Male	8
Participants' University Affiliation	
Student	21
Employee	18
Attend OLLI	15
No Affiliation	1

[2] A demographic comparison of enrolled participants who completed baseline, post, and paired surveys is in Appendix Table A1.

Table 2. Survey Variable and Coding

Variable	Description	Coding/Assignment	Composite Variable
	Overall Composite Group (12 Variables) *n*=55 Mean change = 2.36 ± 0.49; *p*< .001		
	Health/Food Choice Subgroup (*n*=55) Mean change = 0.50 ± 0.31; *p*=.11		
FRUIT	How often the participant eats fruits	0=Rarely 1=< 3 times/week	Overall score
VEG	How often the participant eats vegetables	2= 3–5 times/week 3=About once/day 4=2 or 3 times/day 5=3–5 times/day 6=5+ times/day	Health/ Food Choice subgroup
CONFID	Self-reported confidence level in ability to make healthy food choices	1 (Not confident)–10 (Very confident)	Overall score
CHOICE	Self-reported likelihood of the participant regularly making healthy food choices		Health/ Food Choice subgroup
PREP	Percentage of meals the participant cooked or otherwise prepared for themselves	0=0%–5% 1=5%–20% 2=20%–35% 3=35%–50% 4=50%–75% 5=75%–100%	Overall score Health/ Food Choice subgroup
	Purchasing Subgroup (*n*=55) Mean post-intervention change = 0.75 ± 0.24; *p*< .001		
TGATE	Frequency of tailgate market attendance	0=Never 1=Rarely	Overall Score
GROC	Frequency of attendance to grocery stores that offer local food	2=< once/month 3=1–3 times/month 4=About once/week 5=> once/week	Purchasing subgroup
EATOUT	Percentage of meals in a typical week the participant eats outside of the home	4=0%–5% 3=5%–20% 2=20%–35% 1=35%–50% 0=>50%	Overall Score Purchasing subgroup
GUIDE	Does the participant use the area Local Food Guide*?	0=No, 1=Yes	Overall Score
LOGO	Does the participant use the Appalachian Grown logo*?		Purchasing subgroup
	Additional Variables		
GROW	Whether or not participant has grown their own food or is interested in growing food	0=No experience 1=No, but would like to gain experience 2=Yes, any type of experience	Overall Score
PRESERV	In a typical week, the percentage of food that comes from items the participant preserved that they obtained locally	0=0%–5% 1=5%–20% 2=20%–35% 3=35%–50% 4=>50%	Overall Score

* Appalachian Grown Logo and Local Food Guide are projects of the Appalachian Sustainable Agriculture Project, an area nonprofit.

considered acceptable to good (Gadermann et al., 2012; Padilla & Divers, 2013). This confirmed the usefulness of these variable groupings for our analysis.

Because time is often a limiting factor for individuals, and time constraints can vary by age due to work, parenting, and other commitments, we suspected there may be differences in the way participants responded to the study based on their age. We thus used a one-way analysis of variance (ANOVA) procedure to test for differences among age groups. Those under 25 years were placed in the "young adult" cohort, ages 25 to 59 in the "adult" cohort, and those 60 and above in the "older adult" cohort. In addition, a two-factor ANOVA, also known as factorial analysis, was conducted to assess whether a change in scores was attributable to the study intervention after taking into account various factors. The first factor accounted for the number of events that a participant attended with two levels: above average attendance (the participant attended three or more events) or below average attendance (attending two events or less). The second factor accounted for participant purchasing habits as represented by their self-reported scores upon entering the study with two levels: participants entering with scores above the study group average or below the average purchasing score. A paired proportional analysis was conducted using McNemar's test to compare for "before and after" effects on individual fruit consumption, vegetable intake and meal preparation variables. Finally, normality tests were conducted on all variable groups.[3]

Descriptive data was obtained from SurveyMonkey. If participants reported a change in their eating or shopping behavior in the post survey, the types of changes were coded thematically and the number of occurrences of relevant themes such as fresh/local, seasonal, organic, and whole/healthier choices was determined.

Results

Over two-thirds (46/55 or 84%) of the participants attended at least one food related event (Table 3). Participants attended "other events," such as gardening, homesteading, mushrooming class, local farm or garden tours, visiting tailgate markets, and viewing a documentary film about food 13 times. Baseline and post-study responses to questions about specific eating, cooking, and shopping habits are reported in Table 4.

The result of the paired t-test on the overall composite group (12 variables; coding in Table 1) was highly significant (n=55; mea$n$=2.36 $\pm$ 0.49; p<.001), indicating that a positive change in composite scores occurred during the study period. For the purchasing subgroup, the non-parametric signed rank test indicated a significant positive change in scores (n=55; mean=0.75 $\pm$ 0.24; p<.001). The health/food choice variable group did not indicate a statistically significant change (n=55; mean=0.50 $\pm$ 0.31; p=.11). However, a difference was observed between participant baseline and post scores for the FRUIT, VEG, and PREP variables (Table 2). To assess whether this difference was statistically significant, a two-proportion test for paired samples was conducted on each variable. The results of the McNemar's

Table 3. Frequency of Event Attendance and Event Type (n=55)

Event Attended	Number of Participants
1 event	14
2 events	9
3 events or more	23
Type of Events Attended	**Number of Participants Reporting Attendance**
Food Tastings	33
Cooking Classes	22
Talks or Speaker Events	49
Other Event	13
More than one event type	24

[3] A Bonferroni correction was performed on procedures utilized more than two times within the analysis to reduce the chance of committing a Type I ("false positive") error. The cutoff for significance for the paired t tests and McNemar's Tests were 0.0167 after the Bonferroni correction, as they were utilized three times.

Table 4. Baseline and Post Study Healthy Eating, Local Purchasing and Other Characteristics (% participants; *n*=55)

Health/Food Choice Subgroup of Healthy Eating Characteristics	Baseline	Post	Percentage Point Change
Eating fresh fruit 2 or more times/day (FRUIT)	42%	47%	+5
Eating fresh vegetables 2 or more times/day (VEG)	58%	64%	+6
Preparing 50% or more of meals themselves (PREP)	81%	85%	+4
Mean confidence in ability to make healthy choices (CONFID)	8.64	8.75	—
Mean likeliness to regularly make healthy choices (CHOICE)	7.44	7.69	—
Purchasing Subgroup of Local Purchasing Characteristics	**Baseline**	**Post**	
Shopping at local tailgates at least once/week (TGATE)	13%	18%	+5
Shopping at groceries with local food at least once/week (GROC)	62%	73%	+11
Eating >20% of meals outside of the home each week (EATOUT)	25%	15%	-10
Using local food guide to shop (GUIDE)	38%	51%	+13
Using the Appalachian Grown logo to find local products (LOGO)	45%	67%	+22
Gardening and Food Preservation Characteristics	**Baseline**	**Post**	**Change**
Currently growing or planning to grow food (GROW)	85%	85%	—
Twenty percent or more of food eaten comes from items canned, dried, frozen, or otherwise preserved obtained locally (PRESERV)	10%	20%	+10

Test indicate that while there was no statistically significant difference in FRUIT or VEG, a significant increase did occur within the PREP variable ($p<.001$), indicating that participants were preparing more meals for themselves. The one-way ANOVA procedure did not show significant differences among age groups, suggesting all age groups had similar increases in scores.

A two-factor ANOVA was conducted on the purchasing subgroup, as the signed rank test showed a significant increase in scores among this subgroup. Significant main effects were observed for both event attendance ($p=.022$) and the participant's score upon entering the study ($p=.004$), signifying that the observed increase in scores can be attributed to the intervention and that a participant's entry score had an effect on the observed increase in scores. The results indicate that those with below average purchasing entry scores and above average event attendance had significantly higher increases in scores compared with the two cohorts who entered with above average scores (Mean Difference: 2.45; 95% Confidence Interval: 0.64, 4.26; $p=.004$), especially when compared to the cohort with above average entry scores and below average attendance (Mean Difference: 2.02, 95% Confidence Interval: 0.07, 3.97, $p=.040$).

When asked about perceived changes in the post-survey, 34% of participants indicated they had made a change in their eating habits (16% were unsure), and 45% of participants indicated they had made a change in shopping habits (12% were unsure). Reported changes in eating habits varied across individuals, with participants reporting changes such as eating more fresh and local food, greater consciousness of what was being eaten, choosing more organic food, cooking at home more frequently, becoming more adventurous with eating choices, and eating more seasonally.

Discussion

This study focused on the impact of education, in terms of where to purchase local food and how to prepare it; this education effectively reduces some of the upfront time and effort, or transaction costs, which people face when attempting to make a behavior change toward eating more healthy and local food. Our results indicate that in an area with

good access to local food, engaging people in educational food experiences leads to positive behavior changes in food-related behaviors. Clear evidence of this result is seen in the overall composite score of 12 health and food behaviors, which exhibited significant improvement from baseline during the course of the study. Because composite score increases were the same for participants in each age cohort, the study did not yield differential impacts on participants belonging to different age groups. We interpret these results to mean that a simple, low-cost intervention to engage adults in food experiences can assist individuals with adopting new food behaviors. The newsletter provided a streamlined communication mechanism that helped to reduce the transaction—i.e., search and identify—costs of participating in a food event or attending a farmers market.

Participants demonstrated a significant change in the composite subgroup score that measured food purchasing behaviors. Post-study gains reported by participants include more frequent tailgate market attendance (6% of respondents), increased visits to grocers that offer local food products (11% of respondents), and more frequent dining at restaurants that offer local food at least once/week (4%), which suggest greater intention around local food selection. In addition, more participants reported increased familiarity with the local food guide and Appalachian Grown logo, both of which can facilitate the purchase of local food products, and thus an indicator of a more purposeful engagement with the local food system. In fact, at the conclusion of the study more participants were *using* the local food guide (13%) and the Appalachian Grown logo (22%) to shop and find local products This result is likely due to the successful programming of our community partner, the Appalachian Sustainable Agriculture Project (ASAP), and the fact that the study took place in an area with abundant opportunities to engage with the local food system and purchase local food.

Improvements in purchase behavior were impacted by both the baseline behaviors reported by participants and the number of events they attended during the study period. Participants with below-average purchasing entry scores who attended an above-average number of events reported the most significant gains in food-related purchasing behaviors and preferences. This result is intuitive, as those who have more to learn have more to gain from participation in a study that is designed to encourage more healthful choices and local food behaviors.

The lack of statistically significant change in the Health/Food Choice subgroup may have been due to a "ceiling effect" (Schweizer et al., 2019; Wang et al., 2008). Participants who entered the study reporting high frequency for the health/food choice behaviors (e.g., scores on the higher end of the reporting range in this variable group) indicated less opportunity for improvement in these measures. This result is consistent with transaction cost theory, which suggests that reducing costs of acquiring information (in this case, about cooking) will lead to more activity. The result is also consistent with the work of Winkler and Turrell (2009) demonstrating a link between confidence in cooking vegetables and greater vegetable purchasing.

Study participants did not report statistically significant changes in their average fruit and vegetable consumption, which at first glance may seem discouraging. However, 11% of individuals increased their fruit intake and 24% increased their vegetable intake by at least one category (data not shown) where a category change is roughly one half to a whole serving per day. This appears to have practical significance when compared with other studies; for example, a meta-analysis conducted by Ammerman et al. (2002) examining the effectiveness of behavioral dietary interventions reported an average increase of 0.6 servings of fruits and vegetables per day. Another reported change that was not statistically significant is that 10% more participants reported preparing more meals at home post-intervention than at baseline. This may have practical significance because home meal preparation is a marker of more healthful eating habits (Larson et al., 2006) and because engagement with local food supply and food preparation has been shown to offer significant personal enjoyment and pleasure (Byker et al., 2010), which can reinforce these eating behaviors.

The relatively small sample size in this study, due in part to weak participant retention, as well as

the lack of a control group, limits the generalizability of the results. Participants self-selected into the study, perhaps due to an enthusiasm for learning about healthy food behaviors and local food systems, which means they may have been well-primed for the intervention or were already contemplating a change in their food behaviors. In addition, because the study recruitment occurred in January, participants may have self-selected into the study as part of a desire to support a health- or local food-focused intention which may come with the new year. A community "vibe" that is pro-local food may have also served to prime study participants to be more open to a change in food behaviors than would occur in other locations. If any of these factors were prevalent, our results may overstate the impact of the intervention. Replications of this type of study in areas with less vibrant local food systems and/or at other times during the calendar year will help disentangle these potential effects.

Our participants were offered a large number of food activities at very low cost to the researchers because many local food-related activities already occur in our food-conscious community. As a result, replicating this study will be costlier in most other locations.

Participant reporting of significant behavior change despite the short duration of the study (five months) may seem an encouraging endorsement for this intervention because one can see positive impacts in a short period of time. However, the short study duration may also mean that participants were "trying on" new behaviors that may not stick in the long run. If participants are not committed to following through with the reported changes, then they have not fully adjusted their default food behaviors, which means that the impact of the intervention will be overstated. Additionally, participants' high levels of engagement may be attributable to the consistent reminders of opportunities to engage in local food-related events provided by the research team. Without these reminders, favorable behavior gains may decrease or diminish altogether.

Conclusions

This research suggests that interactions with food systems and food education experiences can change household-level consumption decisions. These apparently small changes lead to noticeable preferences toward healthful lifestyles; in fact, our study results indicate more powerful individual changes than are often seen in studies of nutrition education.

This study's intervention was simple, cheap, and intuitive. Future studies wishing to replicate or extend these results should consider also providing participants with a range of opportunities to engage with food in order to allow for the freedom of choice that appears to be a successful element for public and private institutions to affect behavior change (Thaler & Sunstein, 2009). Meeting people where they are—whether they are gaining completely new perspectives and information, contemplating a change in behavior, or have already been starting to change behaviors with the aim of improving their health—will provide opportunities for a broader response to health-promoting interventions in local food systems.

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Appendix

Table A1. Demographic Comparison of Enrolled Participants who Completed Baseline, Post, and Paired Surveys

	Enrolled participants who completed Baseline Survey *n*=151	Post-Survey Respondents *n*=79	Paired Responses Reported in the Study *n*=55
Average Age	53 years	43 years	45 years
% Identifying as Female	118/151=78%	67/79=85%	47/55=85%
UNCA Affiliation (mode)	Student 87/151=58%	Student 34/79=43%	Student 21/55=38%

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COMMENTARY ON COVID-19 AND THE FOOD SYSTEM

THE IMPACT OF COVID-19 ON FOOD SYSTEMS
COSPONSORED BY INFAS:

Inter-institutional Network for Food and Agricultural Sustainability

Information sources utilized by Vermont foodservice businesses during the onset of the COVID-19 pandemic

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Abstract

Our research team interviewed owners or managers (n =10) of commercial (restaurants, caterers, food hubs) and institutional (schools, hospitals) foodservice businesses in Vermont in the summer and fall of 2020 to gather information about their experiences and response to the COVID-19 pandemic. This article discusses the information sources they utilized to make decisions about operating procedures and business strategies as the pandemic unfolded. Though this is not a comparative analysis to other states, Vermont had strong networks and support systems in place before the onset of COVID-19 that were poised to respond quickly as events unfolded. In addition, these interviews highlighted the importance of

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both formal and informal information sources, which filled different niches in the information ecosystem.

Keywords
COVID-19, Foodservice, Food Systems, Resilience, Information, Pandemic, Adaptability

Information Sources and Networks

Vermont commercial and institutional foodservice operations utilized many information sources in the spring of 2020, during the initial stages of the COVID-19 pandemic. These networks and information sources were both formal and informal, including but not limited to briefings by state and federal agencies, nonprofit organizations, informal industry and community group meetings, and social media platforms.

Interviewees identified the following information sources and networks as essential to their planning and decision-making at the start of the COVID-19 pandemic: Vermont Governor Phil Scott's press briefings; Vermont Department of Health briefings; industry calls coordinated by the Vermont Sustainable Jobs Fund and Farm-to-Plate Network (VSJF/F2P); calls organized by the Vermont Small Business Development Center (SBDC) for program alumni; the Vermont Food Hub Collaborative; information and outreach produced by the Vermont Agency of Agriculture, Food and Markets and by University of Vermont Extension; guidance from the Centers for Disease Control and Prevention (CDC); and press briefings from the White House Coronavirus Task Force.

Many of these resources were already in place and became vital support structures to assist agile business adaptations as the pandemic unfolded. Novel informal networks were established as well. Industry groups (such as restaurants, food hubs, and school foodservice) were formed to share information and business strategies. Foodservice operations also used social media platforms to engage with customers and identify effective strategies used by similar businesses in other parts of the country.

This soft infrastructure was essential to foodservice businesses throughout the pandemic, but especially during its initial onset. Interviewees identified Vermont SBDC, VSJF, and F2P as particularly valuable. Businesses also contributed to each other's survival, as interviewees reported that the continued operation of their foodservice businesses had effects up and down the supply chain, supporting farmers and meeting the evolving needs of consumers. These collaborative and community-based support networks, both state-sponsored and independent, might be useful models for other states, as referenced by Campbell (2021) and Ammons et al. (2021).

Some businesses appointed heads of health and safety to monitor information sources and create and manage operating procedures based on evolving health guidance. Businesses also created or joined safety and reopening committees to coordinate and share information about industry reopening protocols.

Relationships Were Vital to Adaptation

A complex web of relationships supported these businesses in Vermont and allowed for agility and adaptability as the crisis evolved throughout the year. Information from state and federal agencies was necessary for a host of reasons. However, information was also gathered, disseminated, and utilized within business operations and between businesses and organizations throughout the supply chain. Businesses in many cases were able to successfully communicate with farmer-suppliers, distributors, employees, customers, and the public to adjust their business practices and operations as necessary.

Many employers stressed the adaptability of their staff as crucial to the business's ability to adjust practices and operating procedures. Interviewees reported that their staffs were flexible and willing to

implement necessary changes. Owners and managers also cited their concern for employees' health and well-being. Employers made efforts to provide physical and mental support to staff during this time, including paid personal time, mental health resources, personal protective equipment, food assistance, health insurance, and flexible work schedules. Businesses adopted new technologies to communicate with staff during the pandemic shutdowns. Virtual meeting and file-sharing platforms were used to share information and coordinate between staff and managers who were no longer working face-to-face.

Relationships between businesses and consumers allowed businesses to change their food delivery strategies (curbside pick-up, local delivery, online ordering, etc.) while maintaining consumer support. Individuals had to think carefully about their food choices and sources to support the businesses in their communities. In many cases, consumers were willing to adapt to the changing foodservice landscape and go along with new operating procedures. This willingness to adapt has been pivotal to the continued viability of many foodservice businesses. Businesses had to communicate effectively with consumers about hours of operation, changes in menu offering, meal service styles, ordering logistics, and health and safety protocols to ensure continued operation and protect both customers and staff.

Relationships between foodservice businesses and their vendors ensured consistent food supply while allowing for substitutions and last-minute changes based on business needs and opportunities. Long-standing relationships allowed for open communication, support, and mutual understanding. In some cases, businesses initiated new relationships with local producers, particularly through food hubs, to fill needs that national suppliers could not meet. Fardkhales and Lincoln (2021) discuss a similar impact of food hubs in Hawai'i's COVID-19 food systems response. Small-scale producers, frequently local, were able to pivot their production, packaging, and delivery operations quickly. They were often flexible and able to adapt along with their buyers. At times, foodservice businesses were also able to minimize food waste by adapting their menus to sudden excesses of local food products.

Relationships between businesses and government organizations were vital. In many cases, businesses had direct contact with government actors. In other cases, relationships were based on familiarity or exposure to the organization's role, even if a direct contact did not exist. These relationships were based on the utility of the information and support offered, as well as trust in the agency or organization providing the information.

Shortcomings

Interviewees found that at times they lacked necessary information or that information sources contradicted each other. In some cases, this may have been avoidable. Information from state and federal sources was not always aligned, creating confusion about best practices and expectations. In other cases, information gaps were unavoidable, as the situation was new and rapidly evolving.

The most critical piece of information that businesses lacked in the early stages of the pandemic was how long to expect restrictions and changes to business operations to persist. An anticipated timeline or duration of lockdowns would have guided decisions about whether to stay open or close, retain employees or reduce staffing, purchase and/or install new equipment or infrastructure, or adopt new technologies. Because policy decisions have been largely based on health data from a complex and dynamic crisis that is still unfolding, it was and still is unknown how long restrictions will be in place, making this challenge unavoidable.

More thorough details about the permissible use of relief funds, loan forgiveness or repayment terms, and potential loan or grant tax liabilities could have allowed businesses to use funds more quickly and with greater impact. The terms of the financial assistance offered to business owners were unclear, inhibiting decisions about retaining or hiring staff and purchasing equipment or technologies. Interviewees reported that they would have made different decisions if they had had clear information

about relief funds and loans. Some businesses would have maintained or increased staffing levels in the early months of the pandemic or purchased new adaptive equipment or technologies were it not for the unknowns and uncertainties around payback terms and forgiveness opportunities.

Conclusion

Vermont's collaborative and supportive landscape allowed for flexibility, adaptability, and resilience in the face of a significant system shock. Formal and informal networks and institutions had established trust and goodwill that allowed for collaboration, adaptation, and survival.

Though the multivarious information sources could have been overwhelming at times, it is important to note that each provided different types of information and support to food businesses. The CDC and departments of health kept businesses and individuals informed about evolving scientific knowledge of the SARS-CoV-2 virus and COVID-19 and how it affected sanitation procedures and protective guidelines. State and federal agencies implemented operating restrictions, regulations, and mandates, as well as relief programs. Business support services, such as SBDC and VSJF, provided guidance on relief applications and business strategies. Industry committees and support groups shared information about operating procedures for staff and consumer health, adoption of technologies, and experiences with various relief programs.

These conduits provided a great deal of information and, despite some redundancy, each provided specialized support with a unique perspective. It remains unclear to what extent this redundancy was useful or was too fragmented and overwhelming for business decision-makers. Fardkhales and Lincoln (2021) describe the value of redundancy in diverse systems when responding to a crisis such as the COVID-19 pandemic. Glaros et al. (2021) further explain how supply networks, as opposed to chains, work toward community resilience. This network perspective can be applied to the various sources of information utilized by businesses during immediate and prolonged crises. Pre-existing networks, such as VSJF and SBDC, and trust in those networks by foodservice businesses, allowed for the rapid dissemination of valuable information that enabled operations to continue to move food from farms to individual consumers in Vermont.

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Market challenges for local specialty crop producers during the early phase of COVID-19 in North Carolina

THE IMPACT OF COVID-19 ON FOOD SYSTEMS COSPONSORED BY INFAS:

Inter-institutional Network for Food and Agricultural Sustainability

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Abstract

In March of 2020, as the number of COVID-19 cases increased in North Carolina (NC), the state encouraged people to stay at home; this included closing restaurants and canceling large events, as well as reducing the number of people gathering. The economic and health crises created by COVID-19 forced specialty crop producers who sell to local markets, such as restaurants and institutions, to pivot their marketing plans as the growing season began to ramp up. This article reports the responses to the first in a series of producer surveys assessing the impact of the economic and health crises on crop production, market channels, and producer concerns during one of the most insecure times in modern history. Results show that producers who could pivot their marketing plans mostly increased sales through online channels and farm stands. However, almost 50% of the usual market channels were reported to be closed due to COVID-19. Additionally, most producers voiced concerns about economic and health safety in the immediate future. To address these concerns as the pandemic unfolded, there was a need for trusted information. Respondents reported that they rely on Extension and other government agencies for this information and updates regarding the pandemic. This survey captured the early impacts of the COVID-19 pandemic on the specialty crop-producing industry in NC. Additional surveys will provide information on how the pandemic evolved during 2020.

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COVID-19, Horticulture Crops, Specialty Crop Production, Local Food Systems, Pandemic

Introduction

In March of 2020, it was more than difficult to foresee the full extent of COVID-19 and the impact it would have on our local and global food systems. In NC, a statewide stay-at-home order went into effect on March 30, 2020, and lasted until May 22, 2020 (NC Executive Order 121, 2020). Additionally, due to regulation on the size of gatherings, many facilities were forced to close, including schools, offices, restaurants, bars, salons, gyms, and daycare centers. Prior to the pandemic, Americans consumed approximately 34% of all meals outside the home, and 50% of household food budgets were spent on meals outside the home (Saksena et al., 2018). While the closure of institutions and restaurants minimized the spread of COVID-19 infections, it led to dramatic shifts in the way people access and consume food. These shifts in habits, which happened almost overnight, created major disruptions in food supply chains across the country (Anderson, 2020; Havice et al., 2020; Hendrickson, 2020).

The local food economy in the United States has an estimated commodity value of more than US$8.7 billion per year (U.S. Department of Agriculture National Agricultural Statistics Service [USDA NASS], 2015, 2019) and is mainly driven by small and medium-sized farming operations. Approximately one-third of all specialty crop producers in the U.S. are considered small-scale producers, with an annual income of less than US$250,000 (USDA NASS, 2019) and 33% of all revenue generated through direct-to-consumer sales (USDA NASS, 2015). In NC, the local food economy is an important revenue stream for many farms and is a source of fruits and vegetables for consumers across the state. Approximately 9% of farms in NC sell directly to consumers, generating about US$70 million annually (MacDonald, 2021). Direct-to-consumer market channels include products sold through farmers markets, farm stands and stores, U-pick operations, online sales, and community supported agriculture (CSA) (MacDonald, 2021). To help consumers access these products, the N.C. Department of Agriculture and Consumer Services (NCDA & CS) operates four farmers markets throughout the state. In addition, there are an estimated 235 other farmers markets across NC (NCDA & CS, 2020). At the beginning of the pandemic, especially in April of 2020, many farmers markets operated at reduced capacity in NC.

Within the span of a few days, many specialty crop producers in NC lost their primary markets and important revenue streams due to COVID-19 related local and statewide orders. Therefore, producers suddenly—and urgently—needed to identify new markets and adopt new safety measures (White, 2021). Early surveys on the impact of COVID-19 on food systems raised major concerns about the economic vulnerability of producers, especially of small-scale producers, impacted by pandemic-related recommendations and orders (Carolina Farm Stewardship Association [CFSA], 2020; Cranfield, 2012; Hobbs, 2020; Lusk et al., 2020). While the adaptability of small-scale producers can lead to increased resilience of local food systems overall, single producers are also more vulnerable to damaging economic losses due to COVID-19 (CFSA, 2020; Hobbs, 2020). Specialty crop producers had to adapt to new market channels quickly. In the early months of the COVID-19 pandemic, the N.C. Cooperative Extension Service (NCCES) and other Extension services across the nation were challenged to identify needs, adapt programming, and address the rapidly evolving preferences of consumers and producers (Patillo et al., 2021). Some of these needs resulted from fast-changing demand within the food system and specific market channels and supply chains.

Therefore, the Center for Environmental Farming Systems (CEFS),[1] in collaboration with

[1] The Center for Environmental Farming Systems (CEFS) was established in 1994 as a partnership among NC State University, NC Agricultural and Technical State University, and the NC Department of Agriculture and Consumer Services. CEFS develops and promotes just and equitable food and farming systems that conserve natural resources, strengthen communities, improve health outcomes, and provide economic opportunities in NC and beyond.

the Department of Horticultural Science and the Local Foods Program at NC State University, developed a statewide specialty crop producer survey in late April 2020, aiming to assess the impact of the COVID-19 pandemic on farm safety, market avenues, and producer needs. We collaborated with the CFSA, which also surveyed NC and South Carolina. However, our survey focused solely on specialty crop producers in NC. Here we summarize the results of this survey and discuss changes to online and direct-to-consumer markets of local specialty crop producers and NCCES responses during the early phase of the COVID-19 pandemic in NC.

Methods

Several Extension Specialists with the Department of Horticultural Science (see Acknowledgments), the Center of Environmental Farming Systems (CEFS), and the Local Foods Program at NC State University developed the survey instrument. The survey aimed (1) to assess the impact of COVID-19 on farm safety and the market distribution of local specialty crop producers in NC, and (2) to assess specific COVID-19 related extension needs of specialty NC producers.

The survey instrument contained nine questions in five sections (Table 1). The first section asked for general farm demographics, including farm size, types of crops grown, and market outlets utilized before the COVID-19 pandemic. The survey instrument then moved on to the second set of questions, which sought to determine how certain market outlets were initially affected (i.e., an increase in sales, a decrease in sales, no change, or a complete shutdown) by COVID-19. The third set of questions focused on the challenges producers faced at the start of the pandemic. The fourth set of questions asked what measures the farms were planning to take in the coming weeks in response to the COVID-19 pandemic. The last set of questions was specific to NC State Extension—question nine asked how Extension could assist producers and where each participant found COVID-19 information.

The survey was built in Qualtrics XM (SAP, Cary, NC) and was web-based (no print copies were distributed). It was anonymous, and no incentives were offered for completion. None of the answers was forced, and it took 7 to 8 minutes on average to complete the survey. The initial landing page provided a brief overview of the survey and asked for consent to utilize the data anonymously for research purposes. The survey was initially distributed on April 23, 2020, and data collection was closed on May 13, 2020. Before distribution, the survey was approved by the Office for Research and Compliance at NC State University (IRB Protocol Number 21001).

The main objective of this project is to evaluate the impact of COVID-19 on producers who sell to local markets. The survey was intended to reach NC specialty crop producers who did not typically rely on agritourism for any percentage of their revenue stream; any respondent who indicated that they had a restaurant, tasting room, winery, event space, or other agritourism offering was not included in statistical analyses of the survey results. To get the most accurate picture of these impacts, we decided to remove businesses that rely on these revenue streams.

The survey description and link were distributed through multiple email listservs and blogs that reach our desired demographic—specialty crop producers in NC. The following distribution channels were used: NC State Extension COVID-19 Resource page; NC State Horticulture Extension Portals; NC State berry, grape, vegetable, hemp, and herb producer listservs; NC Strawberry Association; NC Vegetable Grower Association; NC Muscadine Grape Association; and all NC Cooperative Extension Horticulture and Local Foods Agents.

All survey questions were downloaded from Qualtrics without identifiers and then analyzed using R scripts. Data cleaning and preliminary analysis using R were completed in RStudio version 1.2.5033. The resultant data frames were downloaded as CSV files onto a secured, remote OneDrive server hosted through the University of North Carolina at Chapel Hill. Microsoft Excel 2019 (Microsoft, Seattle, Washington) was used for further analysis and graphic production.

Table 1. Overview of Questions and Answers of the April 2020 COVID-19 NC Producers Survey

The survey was developed in Qualtrics, distributed online, and open from April 23, 2020, to May 13, 2020. Respondents were not required to answer each question.

Question		Answer Choices	Valid responses
1	How would you describe the size of the farmed land (all crops combined) you own or manage? (select all that apply)	Small-scale farm (0-100 acres); Mid-size farm (100-300 acres); Mid-size farm (300-500 acres); Large-scale farm (>500 acres)	124
2	What crops do you grow on your farm? (select all that apply)	Vegetables (peppers, tomatoes, cucumbers); Vegetables (squash, melons, pumpkins); Herbs; Flowers; Potatoes (sweet potatoes, white potatoes); Berries (strawberry, caneberry, blueberry); Grapes (fresh market, processing); Tree Fruit (apples, peaches, pecans); Hemp; Other Vegetables; Other Fruit	120
3	What is true for you?	We had to close part of the business; We had to close the entire business; We have more business than the same time last year; We have the same amount of business compared to this time last year	117
4	What were your market outlets Pre-COVID-19 (percentage of sales)	U-Pick (__%); Farm Stand/Farm Store/Roadside/Pick-Up (__%); Wholesale to grocery stores (__%); Farmers Markets (__%); Sale to restaurants/schools or other institution (__%); Online sales/delivery (__%)	117
5	If anything has changed, how has your typical market outlet been affected by COVID-19, compared to this time last year?	U-Pick; Farm Stand/Farm Store/Roadside/Pick-Up; Wholesale to grocery stores; Farmers Markets; Sale to restaurants/schools or other institution; Online sales/delivery	102
6	What challenges do you currently face due to the COVID-19 pandemic? (select all that apply)	Food safety; Loss of income or reduced sales; Visitor, customer, staff safety; Availability of labor supplies; Availability of labor; Impact on community health; Impact on personal and/or farmer health; Duration of restriction and economic impact; How can I follow new guidelines and best practices; None; Other (please specify)	120
7	What measures do you plan to take in the coming weeks due to the COVID-19 pandemic? (select all that apply)	Close business completely; Transition to takeout or online services or curbside exclusively; Using more personal protection (hand sanitizer, wearing masks, etc.); Implement more social distancing of staff and customers; Reduce staff/labor; None of the above; Other (please specify)	104
8	How do you expect NC State Extension to assist you? (select all that apply)	Provide advice on best practice to keep operations open and safe; Provide frequent updates and information on the situation; Help identify new markets for your product; Assist with changes in operations; Be at the extension station or in the field with farmers; No expectations; Other (please specify)	121
9	Where do you get your information regarding the COVID-19 pandemic? (select all that apply)	NC State Extension; Extension service of other university(ies); Newsletters; Crop associations; News (national/local); Social media (Facebook, Twitter, etc.); Government (local/national) e.g. CDC, FDA, etc.; Nonprofit organizations; Friends and neighbors; Other (please specify)	121

Results

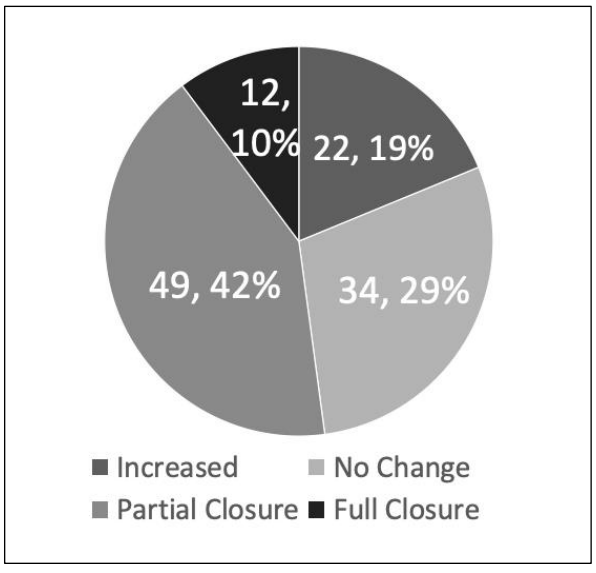
Demographics

Out of 198 responses, we eliminated 57 responses for not indicating farm size and crops grown (non-valid). We further eliminated 17 responses from operations which included agritourism revenue streams. A total of 124 valid responses were counted on the day of survey closure.

Responses were considered valid if the respondents answered questions 1 and 2 (Table 1). These two questions were used to identify possible connections between farms' COVID-19 responses and their demographics. Out of the 124 valid responses, 96 respondents identified as small farms (0-100 acres), 15 identified as mid-sized farms (100-500 acres), and five identified as large-scale farms (500+ acres). Vegetables (peppers, tomatoes, cucumbers) were the most common crops grown by survey respondents (*n*=71). Vegetables (squash, melons, pumpkins) followed closely behind, with 62 respondents indicating that their operations grew these crops. After vegetables, berries were the third most common crop (*n*=51).

Figure 1. Business Volume During April/May 2020 Compared to the Previous Year

Survey respondents were asked, "What is true for you?" They were given four response options to determine whether their market outlets experienced increases, decreases, or no changes in activity compared to the same time the previous year (2019). Respondents could select one, multiple, or none of the answers provided. Total *n*=117.



Impact of COVID-19 on Market Distributions of Specialty Crop Operations in NC

Several questions asked producers to assess the impact of COVID-19 on the market distribution of specialty crop-producing operations in NC. The survey provided four options to evaluate general changes in business volume (Question 3, Table 1). Figure 1 highlights how operations were initially impacted by COVID-19 (*n*=117). The plurality of farming operations (41.88% (*n*=49)) experienced a partial closure of their business, while roughly a quarter (29.06% (*n*=34)) experienced no change in business compared to the same time last year. Moreover, 18.80 % (*n*=22) experienced an increase in business compared to the same time the previous year, while 10.26 % (*n*=12) experienced a full closure of their business.

When asked about changes to market outlets, 87.80% (*n*=36) of producers reported a partial or complete loss of business with restaurants and schools. 66.67% (*n*=32) had less business in the U-Pick market, and 61.76% (*n*=21) experienced decreased or closed business with wholesale markets. However, 32.79% (*n*=20) reported an increase in farm stand outlets, and 51.35% (*n*=19) reported an increase in using online platforms for fresh produce sales (Figure 2). Only 10% of operations were engaged in online sales before the pandemic occurred (Question 4, Table 1, data not shown).

Producers' Immediate Reactions to COVID-19

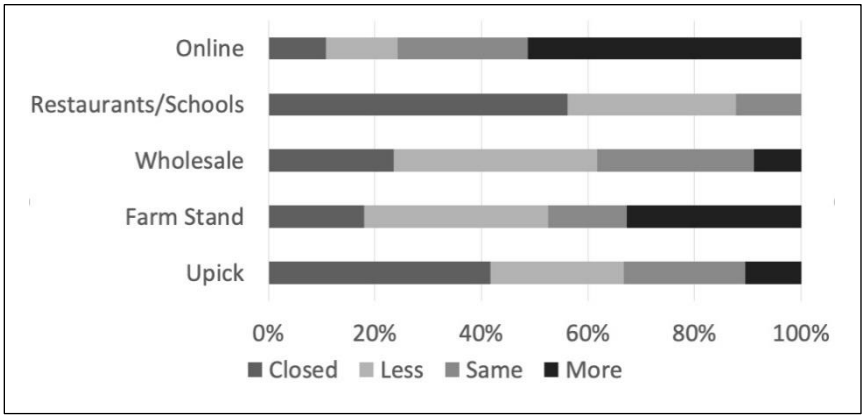
Two questions were asked to find out more about the sense of responsiveness and concerns related to economic well-being and health security. When asked about the challenges producers faced during the beginning of the COVID-19 pandemic (Question 6, Table 1, 2), 67.50% (*n*=81) reported a loss of income (Table 2), and 60.83% (*n*=73) reported that the duration of COVID-19 regulations posed difficulties for their farming operation. In addition, 50.83% (*n*=61) of producers were challenged by protecting the safety of their customers and staff, and 36.67% (*n*=44) worried about their personal health (Table 2). The availability of labor challenged 35.00% of respondents (*n*=42). About one-

quarter of respondents (25.00%, *n*=30) were challenged in implementing new regulations on their farming operations. Less than a quarter of respondents were challenged by food safety (19.17% (*n*=23)), availability of supplies (18.33% (*n*=22)), or the impact of COVID-19 on community health (17.50% (*n*=21)).

When asked what measures producers were planning to take in the coming weeks due to the COVID-19 pandemic (Question 7, Table 1), producers responded that they planned to implement more personal protection equipment (73.08% (*n*=76)), use more social distancing between staff and customers (62.50% (*n*=65)), develop online or pick-up services 926.92% (*n*=28)), and reduce labor and staff (23.08% (*n*=24)).

Figure 2. Effects of the COVID-19 Pandemic on Business Volume by Sales Avenue

Survey respondents were asked, "If anything has changed, how has your typical market outlet been affected by COVID-19, compared to this time last year?". They were then given a list of different market outlets, and they were able to indicate whether that outlet's sales increased, decreased, stayed the same, or closed. Indicated are the percentage of businesses in each market outlet. Respondents could select one, multiple, or none of the market outlets provided. Total *n*=102.



Specific COVID-19 related extension needs in NC

The survey's eighth question asked, "How do you expect NC Cooperative Extension to help you?" Respondents were allowed to pick one, multiple, or none of the following responses: (1) Provide updates and information on the pandemic; (2) Provide advice on best practices to keep operations open and safe; (3) Be at the extension station or in the field with producers; (4) Provide operational assistance; (5) Other; (and/or 6) No expectations (Table 1). Of the 121 respondents who answered this question, 60.33% (*n*=73) expected NCCES to provide updates and information on the pandemic, and 51.24% (*n*=62) also wanted advice on the best practices to keep farming operations open and safe. Less than half wanted extension agents to be at the extension station/in the field with producers and provide operational assistance (Figure 3). Those who answered "other" could explain what types of assistance they desired. These answers included: information on grants to support affected producers, meetings for "vine producers" to discuss vineyard-related issues, and sharing information on the implications of COVID-19 on food production with state and federal agencies.

Table 2. Producers' Challenges During April/May 2020

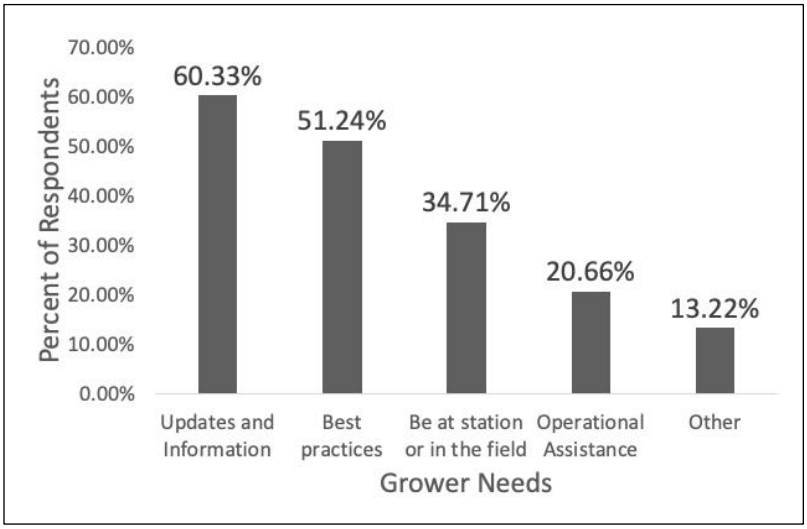
Survey respondents were asked, "What challenges do you currently face due to the COVID-19 pandemic?" and were given 11 answer options (Table 1). Indicated here are the percentage of businesses and number per responses per answer. Respondents could select one, multiple, or none of the answers provided. Total *n*=120.

Concern	Percent (%) of Producers	n
Loss of Income	67.5%	81
Duration of restrictions	60.83%	73
Visitor, customer, staff safety	50.83%	61
Personal health	36.67%	44
Availability of labor	35.00%	42
New guidelines	25.00%	30
Food safety	19.17%	23
Availability of supplies	18.33%	22
Impact on community health	17.50%	21

The survey's ninth question asked, "Where do you get your information regarding the COVID-19 pandemic?" Respondents were given nine possible

Figure 3. Producers' Needs from NC State Cooperative Extension

Survey respondents were asked, "How do you expect NC Cooperative Extension Service to help you?". Indicated is the percentage of respondents. Total *n*=121.



answers (Table 1). A majority, 82.64% (n=100) of respondents, indicated that they received their information from national or local news sources. Governmental and NCCES sources were found to provide 61.16% (n=74) and 49.59% (n=60) of producers with information regarding COVID-19, respectively. The remaining responses decreased in popularity starting with social media (33.06% [n=40]), newsletters (31.40% (n=38), friends and neighbors (20.66% (n=25)), crop associations (16.53% (n=20)), and other university extension agencies (19.01% (n=23)). Those who responded "Other" explained that they got their information from research publications or international news organizations.

Discussion

North Carolina took a leading role among the Southern states in carrying out early stay-at-home orders and statewide facemask requirements and was one of the last states in the South to implement re-opening phases (NCGOV, n.d.). While COVID-19 has long-lasting impacts on the economy of small and medium-sized farms, this study focuses on the immediate impacts of early COVID-19 regulations on specialty crop producers over the weeks of April and the beginning of May 2020. We document both the concerns of producers over an unfolding economic and health crisis, as well as the early economic impact on the specialty crop farming community in NC. By assessing these immediate reactions and responses, we hope to contribute knowledge to shape an optimized and robust crisis extension and policy response in NC in the future.

Impact of COVID-19 on Market Distribution Channels of Specialty Crop Operations in NC

While more than 50% of all producers who responded to the survey reported full or partial closures due to COVID-19, 35% did not experience any changes. In addition, more than 20% experienced an increase in business due to COVID-19 (Figure 1). Most sales loss was reported with restaurants, schools, traditional U-Pick operations, and grocery stores (Figure 2); this finding was expected. An important note is that producers had to find places to sell their products with little time to pivot as the growing season was ramping up due to the sudden closure of restaurants and events. These results correspond with a Carolina Farm Stewardship Association (CFSA) survey over the same period with producers in both NC and South Carolina, including livestock and value-added producers. CFSA utilized general traffic to their website and their member listserv for survey participation, while our survey was disseminated through various channels, including grower associations and cooperative extension (see above). The CFSA survey showed a decrease in almost all market channels for small and medium-sized farms (CFSA, 2020) and reported an increase in 'other direct-to-consumer sales.' This aligns with a May 2020 Congressional Report that stated that the U.S. fruit and vegetable industry considered direct-to-consumer market channels as an alternative distribution option to meet demand shortfalls from traditional market channels (Johnson, 2020). In the reported survey, online sales and farm stands became important market channels during the stay-at-home

orders and business closures in March and April 2020 in NC (Figure 2). 10% of our respondents reported utilizing online sales before the pandemic, but 45% of respondents reported increased sales from online platforms during the pandemic. This demonstrates that producers quickly adopted new technology and approaches to find new customers and sales outlets for their products (Lemos & Ackoff, 2020, O'Hara & Low, 2020). Farm stands proved to be another important market channel for specialty crop producers during the stay-at-home order, with 30% of producers reporting increased sales at farm stands (Figure 2).

However, these cases stand in contrast to the 55% of surveyed producers that indicated they lost business compared to the same time in 2019. Potential reasons for this difference may include farm size (in terms of total sales and not just acreage), availability of labor, access to markets and technology, technology literacy, and prior marketing experience. Our survey findings were reinforced by the CFSA survey (CFSA, 2020), which showed that approximately 50% of farms increased direct-to-consumer sales while approximately 40% experienced decreased sales, with the remainder of farms remaining the same.

Direct-to-consumer supply chains have generally proven to be more flexible and adaptable to system-wide changes or threats than global supply chains (Cullen, 2020; Johnson, 2020). However, our data indicate a more complicated story: more than half of all producers could not react to new circumstances, and only about one-third were able to increase business by shifting to new market channels. Such results are unsustainable on a long-term scale, and we advocate for policies that improve the adaptability and flexibility of small farms and local food producers in the future. Such preparedness can include ongoing training programs, the development of high-speed internet infrastructure (CFSA, 2020), expanding and restructuring extension programs, and improved labor training and availability (Low et al., 2015; O'Hara & Low, 2020). More than 50% of farms that sell direct to consumers are in metropolitan counties (O'Hara & Low, 2020). Higher population levels within 50 miles of a farm increase the likelihood of participating in direct-to-consumer markets (O'Hara & Lin, 2019). Farms in NC located in more rural counties may not have had enough consumer traffic to justify increasing direct-to-consumer sales.

Producers' Immediate Concerns related to COVID-19

Factors such as input price variability, uncertain weather and climate patterns, yield variability, and price fluctuations make operating a farm business an especially difficult and risky venture (Low et al., 2015). In 2020, the chaos and uncertainty surrounding the COVID-19 pandemic made running a farm even more difficult.

Our survey asked what challenges NC producers faced since COVID-19 regulations were put in place and the major measures producers were planning to implement in the immediate future (Questions 6 and 7, Table 1, Table 2). When asked about major challenges since the onset of the pandemic, economic concerns outweighed health concerns. Two out of the three most common answers were related to economic challenges (Table 2): (#1) loss of income, (#2) duration of restrictions, and (#3) health concerns (Visitor, Consumer, and Staff safety). Personal safety (#4) was only important to 36% of the respondents, and labor availability (#5) to 35%. These answers indicate that even if producers could shift market avenues quickly, those changes were still costly and might have generated a net loss of income. These results are supported by the CFSA survey, in which many producers also reported a loss of income during the first month of the COVID-19 pandemic in NC and SC (CFSA, 2020).

However, when looking into the immediate future, health concerns were prioritized over economic concerns. Two out of the top three answers were related to health concerns, with 76 producers planning to implement increased personal protection equipment (#1) and 65 planning to use more social distancing (#2). Only 28 producers were planning to develop online services (#3). So while producers are aware of personal, staff, and consumer safety, economic challenges were prioritized during the first month of the pandemic. Concerns over economic loss might have restricted the implementation of health and safety measures. However, more research is required to understand the

underlying factors surrounding farm management decision-making during COVID-19 or other system-wide crises in the future. A better understanding of factors that impact local supply chain dynamics during a public health crisis is essential for informed decision-making and local, regional, and federal policy recommendations.

Recommendations and Conclusion

The COVID-19 pandemic is a worldwide economic and health crisis that left more than 500,000 people dead in the U.S. alone. At the beginning of the COVID-19 pandemic, government regulations rapidly shifted food supply chains globally and locally. This survey was conducted to understand the initial impact of COVID-19 on specialty crop producers in NC during the first month of stay-at-home orders. While approximately one-third of producers could adapt to other direct-to-consumer market channels, 50% reported an overall loss of business, and more than 80% reported a loss of income. Additionally, economic well-being was the focus of many producers during the first month of the pandemic in NC, while health concerns were prioritized for future actions. Producers also identified a need for trustworthy information. Within NC, NCCES assisted in fulfilling this need. However, our results demonstrate critical financial, policy, and education needs for local, regional, and federal governments and Cooperative Extension Services in the U.S.

Based on the survey results, we believe there is a need for farm-specific financial and policy responses, which could entail, for example, subsidizing farm-specific education efforts tailored to fact-based information on COVID-19, enforcing COVID-19 safe workspaces on farms and in packing houses, and funding programs to develop safe farming environments and public education on local foods. Such responses could facilitate the economic viability of local farms, eventually leading to the prevention of illness or death of farmers and farmworkers due to COVID-19.

Generally, we are encouraged by the adaptation and resiliency of producers across NC during the early stage of the COVID-19 pandemic. However, we believe that Cooperative Extension should play a larger role in crisis-related outreach and education efforts in the future. The long-standing integration of Cooperative Extension in rural communities across the U.S. and its core mission of education and knowledge transfer has proven to be a source of trust to communities in NC. Our survey showed that almost 50% of respondents also used NCCES as a source for COVID-19 related news. Cooperative Extension bears the potential to broaden its mission to other important areas of education related to global crisis management. These areas could reach from water-saving strategies over climate change to education on racial equity. This is a unique opportunity to explore new possibilities for the future mission of Cooperative Extension, which extension professionals, administrators, and policy-makers should not miss.

On the day the survey was closed (May 13, 2020), 16,351 people in NC had tested positive for COVID-19, and 625 people in NC had lost their lives due to the disease. While this publication focuses on the economic hardship that COVID-19 brought to the farming community in NC, we are aware that no economic damage will be able to match the pain that the loss of a loved one brings to a family, community, and friends. While stay-at-home orders and social distancing have had large economic impacts on the farming community in NC, they first and foremost saved an uncountable number of lives.

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African and Native American foodways and resilience: From 1619 to COVID-19

THE IMPACT OF COVID-19 ON FOOD SYSTEMS
COSPONSORED BY INFAS:

Inter-institutional Network for Food and Agricultural Sustainability

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Abstract

The COVID-19 pandemic is flooding and splitting "efficiency" fault lines in today's industrialized food system. It also exploits centuries of historical traumas, White supremacy, and systemic racism to kill non-White people at triple the rates of Whites.

In 1619, an English ship landed on the shores of the Powhatan confederacy, or, as the English called it, Point Comfort, Virginia. The ship delivered stolen people onto stolen land. This was a first step in founding today's U.S. food system. Until that time, the people of North America and West Africa had lived off the land for millennia, foraging, hunting, and cultivating food. But 400 years ago, the twin European colonial influences of

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invasion and enslavement entwined the lives and, to some extent, the foodways of Native Americans and West Africans in what is now the U.S.

Yet, these communities are still resilient. This paper offers re-stories about how African American and Native American communities have adapted and maintained foodways to survive, thrive and renew, from 1619 to COVID-19. Methods include historical and literature reviews, interviews, and brief auto-ethnography.

Even in the face of a pandemic, Native American and African American communities still leverage their foodways to survive and thrive. Some of these food system strategies also illustrate shifts that could be made in the United States food system to help everyone thrive.

Keywords
African American Foodways, Native American Foodways, Food Justice, Ethnography, Restorying, Resilience, Food Systems

Introduction

This paper tells a story of how African American and Native American foodways have enabled their communities to survive and thrive, even in the face of a pandemic.

African and Native American people have survived enslavement, invasion, and epidemics. From food scraps thrown from enslavers' tables to commodity foods designed to supplant Indigenous food systems, we created chitlins and fry bread. We made peach cobbler and tempered chokecherry gravy with sugar. We survived by invention and adaptation. Today, African and Native Americans are mobilizing to reclaim, restore, and restory traditional foodways to nourish our cultures, our communities, and the land. Through food, we are reclaiming our health and our heritage.

The resilience of our people and our food systems is now called upon to help us survive the most recent threat to our communities: COVID-19. The virus that causes this disease illuminates and exploits failures of the U.S. public health system, which has put this nation at the top of international illness and death charts. The virus is also exploiting the health disparities resulting from centuries of White supremacy and historical trauma, ravaging African American, Latinx, and Native American communities at rates up to triple that of Whites.

The COVID-19 pandemic is also shining a harsh light on vulnerabilities of the monocultural corporate food system that dominates in the richest countries (and, increasingly, in those they had colonized). Food systems approaches our communities have used to survive four centuries of oppression also offer paths for rebuilding resilience and health in food systems for all in the U.S.

Background and Methods

Who

The first author, LL, is a Black scholar activist and professor. I specialize in sustainable food systems and the intersection of racial equity and anti-Blackness in the U.S. food system. I am committed to highlighting narratives that depict how anti-Blackness and resistance to it shaped the development of U.S. food systems and foodways.

My grandmother taught me so many things. Little did I know at the time that the information she imparted would help me survive a global pandemic. Now that she is gone, and in the face of COVID-19, I wish I had listened more. My grandmother's penchant for canning, cooking, and growing her own food seemed "backward" and old-fashioned to me as a child. Foolishly, I turned my nose up at food preservation, home-cooked meals, and home gardening, three things the world desperately needs now more than ever. That was the food that made us—that made me. From the Trail of Tears to Trayvon Martin, African and Native American communities share long histories marred by loss; loss of land, lives, freedom, culture, and connections to the wisdom of our ancestors. My soul says*, They've taken from us in every way. Yet, we endure, and even thrive.* One of the elders I have interviewed insisted I visit her garden so I could pick some turnip greens. If I was writing about these things, she knew I needed to experience them myself, first-hand. I honor her and those greens that nourished me.

The second author, ML, is a scholar in food sovereignty and traditional storytelling, focusing on the Northern Arapaho people. My work is guided

by dedication to reparatory justice for Indigenous people and all oppressed populations. We have been denied our ways of life and, for millions of us, our lives. My advocacy is for reparation for this injustice. I pray for change now that is equal to all that has been stolen and lost.

My grandpas always told me stories of the time when the Ghost Dance came to the Wind River Indian Reservation. In spite of the travesties and tragedies behind these stories, they still told them with humor. They told me to only kill what you are going to eat and never waste food. They taught me that our elders and children always eat first. By the time I was born in 1970, two out of three meals were complimentary of USDA commodity foods, or "commods" as we call them. Sometimes we had food for a third meal. We would get hungry, but I always knew that there would be a can of meatball stew or fruit cocktail to be found at my home or at my grandparents' homes.

The third author, CM, is a White professor who does action research in public health nutrition, food systems, and social justice. I have learned from the content and the standpoint strategies of LL and ML's restorying work, which they each began as part of their graduate work. I have helped to bridge and braid their restories in the way shared here.

A child of the '70s, I grew up on TV dinners, cheese in cans, and English-inspired dinner triads of cheap meat, a frozen vegetable, and a starch. My mother had a garden when I was small. I never helped with the labor, but snatched sugar snap peas, blueberries, and cherry tomatoes when I would pretend to live off the land. As a Peace Corps volunteer in Fiji, I marveled at how my neighbors could grow everything they ate except oils and spices. My sister and I were the first in our family to embrace cooking. My maternal grandmother passed on an oatmeal cookie recipe (whole wheat and wheat germ, no raisins) that I treasure. I only think to mention that because LL and ML both speak of their ancestors. My section here is still full of "I." But they are teaching me how to tell new kinds of stories.

In this paper, when we say "our," we mean LL and ML's larger communities—those descended from West Africans who were enslaved in what is now the U.S. and the Indigenous people who lived here long before the enslavers invaded. We cannot and do not speak for the great diversity within and between them. But we are of them.

Why

Recent political campaigns have expressed a nostalgic reverence for some of the stories this nation tells about our collective past. For example, an August 2020 campaign mailer from Wyoming's House representative Cheney promises she will fight to "preserve American history." As individual co-authors, we read this as a promise, or threat, to prevent the kind of historical narrative we aim to tell here.

With this paper, we are part of a growing body of work that is reclaiming stories of African American and Native American food systems and foodways. This improves the accuracy and fullness of a history that is so often told mainly by enslavers and colonizers. The purpose of this study is to share how the stories and practices of Native and African American foodways could help heal some wounds and build more resilience in the U.S. food system, to help better nourish us all.

How

Our research is rooted in the rigorous, conventional academic methods of literature review, interview, and, to some extent, auto-ethnography. This paper, however, is not organized according to academic journal traditions. For example, weaknesses in our research and calls for future research appear in this section. Also, we have entwined literature review, results, discussion, and conclusion into one restory.

We used multiple methods in this research. First, LL and ML each developed an extensive restory of African American (particularly Southern) and Native American (particularly Northern Arapaho) foodways, respectively, as part of their culminating graduate research work. ML has published a restory of the Northern Arapaho food system (Arthur & Porter, 2019), and LL is also developing a manuscript that focuses exclusively on African American foodways. We each conducted extensive literature reviews, interviewed community elders and leaders using an open-ended and semistruc-

tured approach (n=3 and n=11, respectively), and analyzed the interviews using a narrative inquiry approach (Arthur & Porter, 2019; Clandinin, 2020; Lunsford, 2020). ML subsequently expanded on his thesis work to include additional interviews and talking circles related to food systems with people in Wind River Reservation, Wyoming. In reading, mentoring, and learning from their independent work, CM increasingly saw strands that connected the two stories.

The co-authors read one another's work. We researched the disproportionate impacts of COVID-19 on African American and Native American people and on our national food system. We outlined ways that traditional foodways overlapped. We examined ways that movements for food and racial justice offer some solutions to health disparities and weaknesses in the corporate food system. We reexamined our previous research and original data and expanded our literature and news media reviews to encompass these overlaps. We paid special attention to stories and scholarship available in books, because their length enables more complex storytelling, while their accessibility is limited by physical availability and volume.

We turned all of this into the restory you see here (summary in Table 1). It is too long for a conventional journal paper. It is too short to share a compressive history of two complex peoples over more than four hundred years. It is summative and indicative, rather than comprehensive. It does not fully recognize great diversities within and between our communities. It encompasses only the contiguous U.S. states. Stories of Latinx Americans and some Asian Americans often entwine with ours and share many strands (Cohen, 1984; Holmes, 2013), but do not appear here. Stories of these groups often intersect, for example, among those who identify as both Black and Indigenous. We honor and invite restorying research from storytellers of these and other communities, including our own.

African and Native American Foodways for Resilience

For millennia, West Africans and Native Americans nourished their communities through growing, gathering, and hunting food. Then, Europeans both invaded the Americas and began kidnapping and enslaving West Africans.

In 1619, the first enslaved people arrived in what is now the U.S. Some may have carried seeds in their hair, such as for okra and greens, supplementing the roots and black-eyed peas that their captors transported as food for the Middle Passage journey. In the U.S. South, they grew food for their families in plantation gardens to supplement whatever rations and scraps the enslavers provided.

Native Americans had thrived on these lands, growing corn, beans, and squash; fishing, foraging, and hunting. European invaders forced these communities off their historical homelands and decimated them with epidemics of infectious disease. The U.S. government eventually starved them into concentration camps called "reservations." But many remembered old foodways and retained, restored, and adapted them to new landscapes.

These are our ancestors. Today, African and Native American communities suffer enormous health disparities rooted in traumas inflicted then and since. However, we also have adapted, developed, and reclaimed our foodways. These have helped us survive and sometimes thrive, even in the face of the COVID-19 pandemic and the additional weaknesses it has exposed in industrialized food systems. This is our re/story of this journey. We have divided our histories into eras (see Table 1). We provide an overview of each era and then, in subsections, illustrate Native American and African American foodways—practices and changes—during that period.

Living Most of Our Story (From Our Origins to the 1500s and 1619)

For most of human time in North America and West Africa, people lived by hunting, fishing, foraging, cultivating wild foods, domesticating animals, and growing gardens and crops. Each community nourished itself with a different blend of these strategies, based on local ecosystems and cultures.

Coastal ecosystems in both regions provided food in abundance. Conditions for staple crops flourished in the tropical coastal climate (McCann, 2009). In West Africa, as a Portuguese trader in Guinea wrote in the 1600s, "everything necessary

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Table 1. Summary of Key Eras in African American and Native American Foodways, 1500s–2020

Era	African American Foodways	Native American Foodways
Living most of our story (origins to 1500s and 1619) • West African foodways • Native American foodways	• Tropical coastal climate. • Rice, sorghum, yam, black-eyed pea agriculture. • Add corn, peanuts, and cassava from North American imports in 1500s. • Gather, fish, small-game hunt, animal husbandry. • Vegetable-centered stews, flavored with meat or fish and often peppers, served with starch staples.	• 6 foodways adapted to climates. • Gather, nurture wild foods, fish, hunt. • Maize, bean, squash agriculture in East and Southwest. • Bison in Great Plains, wild rice in Great Lakes, maple syrup cultivated in New England, fish on coasts (especially salmon in Northwest), pine nuts in Great Basin.
Enduring enslavement, epidemics, encroachment, and invasion (1500s/1619 to 1700s) • Dying • Suffering enslavement • Fighting to retain traditional land and foodways • Allying and being divided	• Kidnapping and enslavement devastated West African populations by about 20%. • Many died on Middle Passage. • Instant severance from food and lifeways. • Employ skills and seeds to grow West African and local options. • Survive on corn and pork rations; gardens, foraging and small-game hunting as "owners" allowed. • Endure brutality, including rape and whippings.	• Smallpox epidemics killed more than any other disease or war with invaders, sometimes entire tribes. • Gradual shifts in food and lifeways. • Teach English invaders foodways to help them survive, who encroach with colonizers and cattle. • Enslaved by Spanish invaders in Florida and Southwest; Pueblo Revolt in 1680. • Nations in East negotiate and fight for land. • Horses + guns aid and expand bison-based foodways.
Building the U.S. (to 1865 and turn of the century) • Putting soul into food • Negotiating for survival • Transitioning to next phases of oppression	• U.S. economy builds on enslaved food and fiber labor. • Create survival foods such as chitlins. • Adapt West African stew traditions and to "owner" preferences to invent soul foods such as peach cobbler, sweet potato pie, and collards with ham hocks. • Establish Underground Railroad to facilitate escape from slavery.	• U.S. builds on stolen land. • Forced onto reservations by starvation (including U.S. bison massacre) and massacres. • Endure cultural genocide tactics, e.g., Dawes Act to reduce reservations, boarding schools, ration foods (invent frybread out of them), and imposition of European agriculture. • Negotiate over 500 treaties with U.S., which breaks all of them.
Surviving White American supremacy (to 1950s) • Reestablishing dislocated lives • E.g.: Facing food marketing • Being fed rations and shame	• Enslavement ends for 4 million of us. Supremacy does not. • Establish flourishing towns, governments and neighborhoods, then crushed by White violence. • Become sharecroppers and servants as only options in a Jim Crow–ruled Southeast. • Great migration out of the South, though racism still rules the nation. • Foods co-opted as White southern food and used for corporate marketing, and yet soul food demonized.	• Rebuild lives with fewer than 250,000 of us left, mainly on reservation; nowhere near homelands and associated foodways for most. • Lose a total of 2/3 of allotted land by 1935 due to Dawes Act. • Suffer destitution, poverty and misery; scratch out foodways with gardening, farming, some hunting, and food rations. • Face additional assimilation strategies, including continued boarding schools and Indian Relocation Act of 1956.

continued

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Reclaiming and restoring (1960s–2000s) • Organizing with food and foodways • E.g.: Facing down food marketing	• Found the civil rights movement, from Martin Luther King Jr. (MLK) to Black Lives Matter (BLM). • Fight and win reparations case against USDA. • Establish land tenure and food justice organizations and initiatives. • E.g., fight and win against racist appropriations in industrial food marketing.	• Build a rights movement, starting in urban areas. • Fight and win reparations case against USDA and honoring of an 1863 treaty establishing half of Oklahoma as Creek land after removal from Southeast. • Establish food sovereignty and land tenure organizations and initiatives. • E.g., fight and win against some racist appropriations in industrial food marketing and sports.
Suffocating in a pandemic (2020)	• We can't breathe. Have knees on our necks; disproportionate air pollution and COVID in our lungs. • Have high rates of pre-existing conditions from legacies of supremacy outlined here. • Disproportionately do front-line food and medical service jobs, exposing us to the virus. • Dying from COVID at 2 to 3 times the rate of Whites.	• We also can't breathe. Suffer policy brutality; disproportionate air pollution and COVID in our lungs. • Have high rates of pre-existing conditions from legacies of supremacy outlined here. • Dying from COVID at 2 to 3 times the rate of Whites. • Reservation-based Nations provide leading public health responses in testing, isolating, and tracing.
Knowing and showing how to thrive (our ancestors to our grandchildren) • E.g.: Using good fire to nurture foodways • E.g.: Proposing 40 acres • Providing paradigms and policies for change • Now what?	• Retain and restore local foodways including gardens, markets, cooperatives, seed saving, soul food cooking. • Propose Movement 4 Black Lives policy platform. • Offer human relationship–centered and collective paradigms for foodways that nourish.	• Retain and restore traditional foodways including three sisters gardening, cultural burning, gathering, establishing bison herds, preparing traditional foods and medicines. • Propose Native Farm Bill Coalition policies. • Offer relational paradigms that center connections between humans, other living beings, earth, our ancestors, and our descendants.

for human existence is found in this land in great plenty and sumptuousness" (Carney & Rosomoff, 2011, p. 7). Similarly, an Englishman who lived with Native Americans in the East and Southeast of North America in the late 1700s noted:

> Providence has furnished even the uncultivated parts of America with sufficient to supply the call of nature.… If an Indian were driven out into the extensive woods, with only a knife and a tomahawk, or small hatchet, it is not to be doubted but he would fatten, even if a wolf would starve. He could soon start a fire, by rubbing two dry pieces of wood together, make a bark hut, make earthen vessels, and a bow and arrow; then kill wild game, fish, freshwater turtles, gather a plentiful variety of vegetables and live in affluence. (Adair, 1775, pp. 409–410)

Though some people made contact between the Americas, Europe, and Africa in this period, this did not involve colonization or systemic enslavement (Van Sertima, 1976).

Native American Foodways

Eastern and southwestern Native American communities farmed, raising what the Iroquois Confederacy describes as the three sisters: maize, beans, and squash. Adair (1775) wrote, "It is surprising to see the great variety of dishes they make out of wild flesh, corn, beans, peas, potatoes, pumpkins, dried fruits, and herbs. They can diversify their courses, as much as the English, or perhaps the French cooks: and in either of the ways they dress their food, it is grateful to a wholesome stomach" (p. 409). He enjoyed, for example, a "wholesome and well-tasted" corn bread, made with bear fat, potatoes and beans (1775, p. 408).

Food writer and historian Linda Berzok (2005) describes six precolonial foodways, adapted to six macro ecosystems. These are summarized below, with particularly distinguishing foods underlined:

- *Northeast Woodlands and Great Lakes region*: Characterized by agriculture, growing the three sisters and vegetables, supplemented with gathering (including indigenous potatoes, nuts, and berries) and hunting (deer, bear, turkey, goose, fish). Specialties include producing maple syrup and sugar and, around the Great Lakes, gathering *manoomin,* or wild rice (pp. 11–12).
- *Southeast*: Anchored by raising maize, with some squash and beans, supplemented by gathering fruits and nuts, fishing, and small-game hunting. Near the coasts, people fished as their primary food supply, especially in what is now Florida (pp. 13–15).
- *Great Plains*: Adapted to the varied climates in this region with both settled agriculture-based foodways and nomadic hunting-gathering ones. In agricultural communities, sunflowers added to the corn-beans-squash mix, along with trade for bison meat. Hunting communities relied on bison and foods they traded and gathered, including *pemmican*, dried and pounded meat mixed with dried berries (pp. 8–9).
- *Southwest*: Developed dryland farming to raise maize, beans, and squash, supplemented with small game and gathering seeds, berries and cactus fruits, and wild greens (pp. 5–7).
- *Northwest coast*: Fished for salmon, with other seafood secondary. Supplemented with plentiful berries, nuts (especially acorns), greens, and lily leaves and roots. Then and now, they share and display this "great food wealth" in potlatches (pp. 7–8).
- *California, Great Basin, and Plateau*: Anchored with shellfish and fish on the coasts, which were always "free of famine" (p. 10). Inland, acorns were a stable and staple food, replaced by pine nuts in the Great Basin, where hunger was common. Small game and invertebrates provided protein (pp. 10–11).

West African Foodways

Sub-Saharan Africans adapted foodways to three climate zones: the Sahel, Ethiopian highlands, and tropical West Africa (McCann, 2009). Agriculture may have begun in the Sahel, which used to receive

more rainfall (Breunig, 2013). Those seeds and farming practices spread to the friendly climates of West Africa and began to anchor foodways there. People grew staples of millet, rice, sorghum, yams, and black-eyed peas (Wallach, 2019).

Then and now, West Africans make spiced stew meals, primarily of vegetables and sometimes augmented with meat and/or fish, served with a preferred starch. Original starch options are African rice, millet, sorghum, and yams (Miller, 2013, pp. 12–13). Later, trade and diffusion from Asia and Mesopotamia made plantains and other rice varieties available, plus fruits such as melons and mangoes (McCann, 2009, p. 25).

In the 1500s, three more options entered West African foodways and quickly became additional anchors in local cuisines: cassava, peanuts, and—especially—maize. Maize was first cultivated from wild grasses by people indigenous to South America. Their seeds and practices spread and were adapted among Native Americans up the eastern coast of North America and in the South, especially the Southwest (Todd, 2008). In the 1500s, the earliest European invaders, enslavers, and traders took corn seeds from South America and brought them to West Africa. Maize proved to be productive and relatively easy to grow and became popular in many communities in West Africa, especially today's Ghana (Wallach, 2019). Cassava and peanuts followed a similar path. This period also marked a turning point for both Native America and West African communities, with European enslavement, invasion, and encroachment.

Enduring Enslavement, Epidemics, Encroachment and Invasion (1500s/1619 to the 1700s)

In August 1619, a British ship carrying over 20 enslaved West Africans landed on the shores of the Powhatan Confederacy. About 10 years earlier, the English had invaded the Powhatan area where the ship came to port. They called it Point Comfort, Virginia.

The landing of that ship marks the day that Native and African American foodways met, by force, in North America. It also roughly marks when this nation began building itself into the United States of America, on stolen lands with stolen people. This began inflicting traumas that, today, still reverberate and persist through generations of their children and grandchildren.

Dying

Enslavement and epidemics decimated West African and Native American populations. From an African population of about 25 million, at least six million were kidnapped into slavery in the Americas. Many died in the Middle Passage. At least two million more died in the kidnapping raids and wars related to the slave trade, in which some African rulers engaged not only to enrich themselves but also to protect themselves in the face of European colonization and encroachment (Reséndez, 2016). The vast majority were taken to the Caribbean and South America. About 5% were brought to what is now the U.S.

In the same time frame, Native Americans in the eastern coast and islands of North America also endured European encroachment, invasion, and some enslavement. The British invaded most of the coast. The Spanish invaded Florida in 1513, the Southwest in the 1600s, and reached California by 1762, enslaving Native Americans along the way: "Spain was to Indian slavery what Portugal and later England were to African slavery" (Reséndez, 2016, p. 4).

Initially, the deadliest blow to Native Americans was disease imported by Europeans, for which they had little biological defenses. Of the frequent epidemics, the most virulent killer was smallpox, which invaders possibly deployed intentionally in biowarfare (Patterson & Runge, 2002). The epidemics hindered Native Americans' capacities to gather, hunt, and grow enough food, and fight the invasion (Reséndez, 2016).

Suffering Enslavement

For most of the 1600s, the British were struggling to establish their colonies on Native lands, and indentured servants well outnumbered enslaved people in the east. However, by the mid-1700s they had established 13 colonies. They embedded chattel slavery in all of them, but especially in food, tobacco, and fiber production in the South.

For West Africans who survived the Middle Passage to North America, their diversity of languages, communities, and lives were suddenly

entwined in one: enslavement for them and the next foreseeable generations of their children. To re-plant their foodways in this new world and life, they depended on strong agricultural skills and memories. They had some okra and greens seeds. They also had the black-eyed peas and yams that their kidnappers stored in ship holds as food for the voyage and which could be planted in their new homes (Carney & Rosomoff, 2009).

What became African American foodways began here, with skills and seeds that West Africans brought across the Middle Passage blending with the foods that their English and then American "owners" wanted prepared for them. They innovated with what was available by region and what little their enslavers chose to make available. They may have also used small-game hunting practices shared by Native Americans (Harris, 2011).

When the enslavers/invaders became American, with the Declaration of Independence in 1776, they doubled down on race-based chattel slavery. In 1787, the group of White "Founding Fathers" drafted the U.S. Constitution with the oxymoronic hypocrisy of declaring, "all men are created equal" with the calculation in which one slave equals only three-fifths of one white man (Article I, Section 2 of the US Constitution, 1787).

Fighting to Retain Traditional Land and Foodways

Compared with the kidnapping of people into slavery, changes in foodways and other key aspects of life were more gradual for Native Americans, in pace with European encroachment and invasion. In fact, Native people in the East often shared their food and foodways with the arriving British, enabling the first colonists to survive and, eventually, thrive (Herrmann, 2019).

However, as the British increasingly encroached on their lands with people and cattle, eastern Native Americans fought back. There were three Anglo-Powhatan Confederacy wars between 1618 and 1644, which concluded with the English taking eastern Virginia for good in 1644. The Cherokees fought a war from 1759 to 1761 to keep what is now the Carolinas. Potawatomis, Ojibwas, and Ottawas successfully reclaimed British posts west of the Appalachians in Pontiac's War. The Iroquois Confederacy mainly continued a strategy of trade and negotiation, with the exception of the Senecas. However, most other eastern Nations turned to war strategies (Herrmann, 2019).

Starting in Florida in the 1500s, Spaniards invaded and enslaved Native people, forcing them into European forms of farming and confined mission living. They then invaded the Southwest in the 1600s (Berzok, 2005). With just a fraction of their population left, Pueblo communities revolted in 1680 and held off the Spanish until 1692 (Romero, 2020). In this period, Diné (Navajo) people chose to begin raising sheep, which Spaniards had imported.

Northwest communities mainly were able to continue traditional life and foodways during this period (Berzok, 2005). People of the Great Plains actually saw some improvement in their access to a key traditional food, bison. As horses and guns arrived much sooner than the invaders who had introduced them, while eastern invasions pushed some Native communities westward, it also equipped them to hunt bison more frequently and successfully (Anderson, 1994; Lowie, 1982; Schilz & Worcester, 1987). Many Plateau and Plains Indian communities who had been farmers became hunters instead (Berzok, 2005).

Allying and Being Divided

African and Native Americans had much in common in their foodways, including one-pot stews and using fermentation for food preservation. Native Americans adopted black-eyed peas to such an extent that some mistakenly thought they originated in North America. Corn became a staple among enslaved people and in West Africa. Intermarriage and Natives sheltering people who escaped slavery were common (Miller, 2013). For example, one of the direct relationships Native and African Americans had in this period was via enslaved people in the southernmost colonies/states escaping to Spanish-colonized Florida. Some worked for their comparative freedom by fighting the British and Native Americans on the side of the Spaniards. Some escaped and formed Black Seminole communities near and occasionally with Indigenous Seminoles (Littlefield, 1977). Early contacts also occurred across the Americas because European explorers who often preceded invasion

usually brought enslaved servants, usually of African origin, with them (Millner, 2003).

However, threatened by any forms of kinship among those they were aiming to invade and enslave, European colonizers used typical divide-and-conquer strategies to gain and maintain power. These included paying slave-catching bounties to Natives (Harris, 2011), pitting enslaved people who worked in homes against those who worked in fields, and embroiling Indigenous Nations in their wars against other Natives and other European colonizers. For example, tensions remain to this day between the Cherokee Nation and the Cherokee Freedmen who have Black ancestry (Chin, 2014).

Some Indigenous Nations, including Seminole and Cherokee people, also practiced slavery (Blackmon, 2008; Sturm, 1998). At this time people on every continent used some slavery practices, including occasional chattel (inherited) enslavement. What was unique about U.S. institution of slavery was the invention of the concept of "race," used to claim that some races were less than fully human and to justify enslavement and brutality against those enslaved (Berlin, 1998; Black, 2011). The English colonizers were building what was to become the U.S. economy and society on stolen land using stolen people's enslaved labor.

Building the U.S. (to 1865 and the Turn of the 20th Century)

By 1804, all northern states had banned slavery. In 1808, Congress banned any further import of kidnapped West Africans into enslavement. The southern states did not object because they had four million enslaved people already laboring in their fields and homes and the promise of enslaving all their descendants.

Food access remained one of the ways that "owners" controlled enslaved people. The institution and daily practices of enslavement and its related foodways continued, largely unchanged, until the adoption of the 13th Amendment at the end of the Civil War in 1865.

Native Americans in the 19th century suffered violent intensification and formalization of the White American invasion with escalating physical and cultural genocide tactics. As outlined below, this included extensive attacks on and disruption of land access and traditional foodways.

Putting Soul into Food

The U.S. economy was built on slavery. The lives of enslaved Blacks and those Whites who were well-off enough to "own" them were deeply entwined, with Whites relying on enslaved people for food production and preparation. Their foodways, then, also entwined, heavily shaped by Blacks. As foodways historian Frederick Opie (2008) observes:

> By the nineteenth century, African American foodways displayed corn, rice, greens, pork, and pork seasoned foods, and fried foods. Over time, the planter class took great delight in the dishes of their slaves, such as chitlins; turnip greens, collards, and kale simmered with pork parts; roasted yams; gumbos; hopping John, corn bread, crackling bread, and cobblers and various preparations of wild game and fish. (p. 36)

According to plantation records and narratives of previously enslaved people, enslavers generally doled out rations of corn and cornmeal with some fatty pork or bacon and milk. For example, Red Richardson, who was enslaved in Texas, recalled, "we ate cornbread, beans, vegetables, and got to drink plenty of milk" (Covey & Eisnach, 2009, p. 18). Who got what and how much varied by plantation, how much an enslaved person labored, and the use of food for reward and punishment (Douglass, 1845).

However, enslaved people gardened, gathered, and hunted small game to supplement their rations. For example, around slave cabins on just one former plantation in Virginia, archeologists found evidence of "pig, cattle, horse, sheep, goat, deer, opossum, rabbit, rat, squirrel, raccoon, chicken, crow, mallard, bird (unidentified), catfish, sturgeon, striped bass, snapping turtle, turtle (unidentified), shellfish, oyster, freshwater mussel, and marine clam" (Covey & Eisnach, 2009, p. 37).

Out of the scraps from animal slaughter that plantation owners would discard, enslaved people also developed chitlins—pig intestines, usually

served fried or boiled in a stew. For both Whites and Blacks, chitlins became "a delicacy," as one elder told LL.

The concept of dessert was imposed on West Africans and their descendants by English and White Americans. They invented soul food dessert mainstays such as sweet bean and sweet potato pies (Miller, 2013; Opie, 2008). They also innovated with cast-off pie crust dough and left over or bruised fruits to create dishes such as peach cobbler (Opie, 2008). During enslavement, however, sugar and desserts were off limits for the people who produced them. Though the idea of dessert was foreign to West Africans, it became part of the culture of their enslaved descendants, starting with molasses with cornbread (Miller, 2013, pp. 240–241). Another foodways shift introduced by the enslavers was the White American view that food "quintessentially meant meat" (Opie, 2008, p. 20). That said, West African use of small amounts of meat to flavor vegetables and stews perseveres to this day in soul food traditions (Opie, 2008, p. 20), such as collards cooked with ham hocks.

Negotiating for Survival

Through the 19th century, Confederacies, Nations and Pueblos negotiated for their survival, both practically in daily life and politically, with wars and treaties. Overall, the U.S. strategy was to force Native American people into ever-shrinking portions of North America where Whites had not yet invaded, combined with a secondary approach of assimilation. Forced removal included starving and forcing people onto "reservations," which included (but is very far from limited to):

- The Indian Removal Act of 1830. President Jackson evicted many Native Americans in the East to lands "granted" to them west of the Mississippi River, mainly in Oklahoma. This further dislocated the foodways of Chickasaw, Cherokee, Creek, Choctaw, and Seminole Nations, who had already adopted many of the agricultural practices pushed by their invaders as a survival strategy. Those who resisted were forcibly marched 5000 miles to Oklahoma on the Trail of Tears; thousands died along the way.
- The Long Walk of 1864. Major General James H. Carleton enlisted the help of Kit Carson in forcing the Dine' (Navajo) nation out of their Arizona homelands to New Mexico, beginning with destroying their fields, peach orchards, and sheep flocks. As was usually the case with these removals, the new allotted territory was much less fertile than their homelands. Oral history suggests that this was when the Dine' people invented fry bread, from the flour and lard rations the U.S. provided, to survive.
- Buffalo massacre of 1865-1890. To starve the Great Plains people onto reservations, the U.S. government adopted a policy of destroying their spiritual and physical source of nourishment: the herds of about 30 million bison. As one army colonel exclaimed, "Kill every buffalo you can! Every buffalo dead is an Indian gone!" (Phippen, 2016). Kiowa elder Old Lady Horse said, "The buffalos saw their day was gone. They could protect their people no longer" (Nabokov, 1991, p. 175). By the end of the century, only a few hundred wild bison were left (Phippen, 2016).

The "push" of starvation and violence onto reservations was paired with a "pull" of government- provided food rations for those who complied. These rations included almost entirely non-traditional foods, such as lard, flour, coffee, and beef. Although these rations were always promised, in practice many hungered even on the reservations. A quarter of the people on the Blackfoot reservation in Montana starved to death in the winter of 1884 (Heat-Moon, 2013).

In the 1800s, the U.S. government and Native American Nations increasingly sought treaties to formalize and codify land allocations, foodways access, and other policies such as food and health care provision. Over 500 treaties were signed. The U.S. has broken every one (Deloria, 1985).

The U.S. also deployed four primary assimilation approaches. One was conversion to Christianity. Another was forced removal of children to U.S. government boarding schools, where teachers

strove to erase their identities, in addition to subjecting them to starvation and physical abuse. The co-founder of the first of these schools proclaimed, "Kill the Indian, save the man!" (Churchill, 2004).

The two other assimilation strategies directly involved altering foodways. One was to foster or force adoption of European approaches to agriculture, as described previously. The other was the passage of the General Allotment Act, or Dawes Act, of 1887. It enabled individual members of a Native American Nation to individually own and sell "their" federal allotments land to private owners. This created a checkerboard pattern of privately owned "fee hold" lands, often owned by non-Natives, on reservations across the U.S. Today, for example, on Wind River Reservation in Wyoming, Whites outnumber Native people two to one (Census Reporter, 2019).

The century closed with the army's massacre of hundreds of Lakota people at Wounded Knee, including Chief Sitting Bull. They had been performing the Ghost Dance—a last-chance spiritual intervention created by the Northern Paiute shaman Wovoka to bring back the buffalo and make the invaders retreat (Andersson, 2018).

Transitioning to Next Phases of Oppression

African and Native American survivors of these centuries of enslavement and invasion retained threads of traditional foodways and wove them into what was available to nourish their families and communities. They foraged, gathered, and grew what they could. It is possible that some enslaved people exchanged small game hunting and gathering techniques with Native Americans in the South. They also invented survival foods, such as fry bread and chitlins, from what few food resources their colonizers and "owners" provided.

Here, we transition from stories of our ancestors to talk about our most recent generations and communities. This includes switching to using "our."

The historian Ibram X. Kendi (2016) notes that the term "race" first appeared in a 1606 dictionary, stating that race "means descent … a man, a horse, a dog, or another animal is from a good or bad race" (p. 36). He argues that the British enslavers and invaders used this concept to lump the great diversity of Native Americans and Africans into one group, and not a group they considered "good." Whites rationalized their own systemic savagery—including chattel enslavement, invasion, whippings, rape, treaty violations, and genocide—by framing their targets as uncivilized, savage, and subhuman. Their justification for chattel slavery and colonization was White supremacist ideals. Rights and principles of equity may be enshrined in law, but not in practice.

Reestablishing Dislocated Lives

At the end of the 19th century, the end of enslavement and completion of invasion ushered in new eras for African and Native American people. There was a brief window of hope for Blacks during the 12-year Reconstruction period that followed the Civil War. About 90% of Black Americans had been enslaved and now all were free (Bennett et al., 1993). The end of enslavement brought both great joy and uncertainty to newly freed African Americans, who had been denied literacy or any form of education. Sudden freedom without support—no housing, no food, and only skills they had been allowed to accrue in service of their "owners"—left many at risk of starvation (Harris, 2011). For example, Thomas Ruffin, who had been enslaved in North Carolina, recalled:

> We used to dig up dirt in the smokehouse and boil it dry and sift it to get the salt to season our food with. We used to go out and get old bones that had been throwed away and crack them open and get the marrow and use them to season greens with. (Harris, 2011, p. 138)

By the turn of the century, White supremacy firmly ruled Black lives again. Yet, starting without even bootstraps, we built new lives. We struggled as sharecroppers for White landowners, often with even less food access and little more freedom than during enslavement (Warnes, 2004). In fact, withholding federal food aid was one of many strategies used to force Blacks into sharecropping (Wallach, 2019). Yet we had extensive agricultural skills, maintained and even grown over generations from expertise brought from West Africa to Emancipation. Black Indigenous farmer Chris Newman

states, "At the end of the Civil War, nobody was a better farmer than a Black person, especially an emancipated slave in the South" (A Growing Culture, 2020, 9:46).

On lands in Alabama that had once been home to the Taskigi Nation and then a slave plantation, Lewis Adams and Booker T. Washington founded the Tuskegee Institute. Beginning his teaching career with Native American students at Hampton Institute in Virginia, Washington went on to invest in Black agrarian expertise and advocate for Black people to control their futures and livelihoods by controlling their own food systems (Wallach, 2019; Washington, 1907). Thus, the Tuskegee Institute invested in nation-building by helping prepare newly freed people to build new, free lives.

We also began to thrive in places such as Colfax, Louisiana, and the Greenwood neighborhood in Tulsa, Oklahoma (nicknamed "Black Wall Street" by Booker T. Washington). African Americans built entire towns, such as Rosewood, Florida, and Empire, Wyoming. At its peak, Empire boasted 65 farms run by African American farmers using dryland techniques (Rawlings-Carroll, 2019). However, White American supremacists systematically destroyed each of these thriving African American communities via massacres and/or lynchings: Colfax in 1873, Tulsa in 1921, Rosewood in 1923, and Empire throughout its existence from 1908 to 1930 (Brophy, 2002; González-Tennant, 2012; Lane, 2008; Rawlings-Carroll, 2019).

Jim Crow laws and use of the Constitutional slavery exclusion for prisoners meant that violent oppression and some forms of enslavement continued throughout the South (Blackmon, 2008). About six million people fled to the North and West, seeking less oppressive conditions (Wilkerson, 2010). However, as described above, White supremacy was often violently imposed in the U.S. well beyond the South.

Among Native Americans, only about 237,000 of us survived to see 1900. We were primarily scraping out new hungry and despairing lives on reservations (Nabokov, 1991). The U.S. had "reserved" for us the lands least desirable for farming, hunting, gathering, and grazing (Dunbar-Ortiz, 2014). In addition, by 1934 the Dawes Act had led to the loss of two-thirds of even these allotted lands (Nabokov, 1991). Only the Pueblos of the Southwest and Nations of the Northwest remained on fragments of primary historical homelands. However, even that was with extensive encroachment and harm to their foodways, such as dams, broken migration pathways, and pollution. Buffalo Bird Woman, of the Hidatsa people, lamented in the 1920s:

> I am an old woman now. The buffaloes and black-tail deer are gone. Indian ways are almost gone. Sometimes I find it hard to believe that I ever lived them. My little son grew up in the white man's school. He can read books, and he owns cattle and has a farm. He is a leader among our Hidatsa people, helping teach them to follow the white man's road… But for me, I cannot forget our old ways. Often in summer I rise at daybreak and steal out to the cornfields; and as I hoe the corn I sing to it, as we did when I was young. No one cares for our corn songs now. Our Indian life, I know, is gone forever. (Nabokov, 1991, p. 182)

Native people became U.S. citizens with the Indian Citizenship Act of 1924. In practice, this added little to our rights or improvements to our plight. For example, Utah and North Dakota did not allow reservation-based people to vote until the late 1950s (Ferguson-Bohnee, 2020). A federal report in 1928 found that we "lived in destitution poverty, and misery" and have "access only to highly deficient education and health services" (Estes, 2019, p. 219). By the 1940s, federal policy was to eliminate us by assimilation. "If you can't change them, absorb them until they simply disappear into the mainstream culture" (Brown-Pérez , 2017, p. 14) is how U.S. Senator Ben Nighthorse Campbell (Northern Cheyenne) described this strategy. Assimilation included stripping federal recognition of many tribes and adopting the Indian Relocation Act of 1956, which paid moving costs for us to leave reservations for cities. Also, while the South followed a "one drop" rule to identify who to oppress for being Black, the formal policy for Natives was elimination via "blood quantums" deemed insufficiently Indigenous.

Example: Facing Food Marketing

White imaginaries of our peoples were also used to contain and constrain us—e.g., "Mammy-ism" (Abdullah, 1998)—while generating profits for corporations, especially food corporations. Three of the most prominent and enduring characters they invented are Aunt Jemima, Uncle Ben, and the nameless Land O'Lakes Indian woman.

Aunt Jemima evokes a White ideal of Black women who prepared their food and nurtured their children (often from their own bosoms), whether enslaved or as servants, imagined as done joyfully (Figure 1): "Mammy is the one role White America is still most comfortable with in Black women" (Fuller, 2001, p. 123). Historian Jennifer Wallach (2019) states, in an observation that also applies to Uncle Ben:

> When buying Aunt Jemima products, White customers purchased not only tools necessary to make a quick, convenient breakfast, they were also buying into the idea of Black subservience, of a "slave in a box." The image of a willing Black servant helped assuage White fears of about Black quests for economic advancement and social equality. (p. 84)

Deployment of White Native American imaginaries was less common in food marketing, showing up more often in sports and tobacco branding. Unlike the ownership and familiarity of the public's first-name basis with Ben and Jemima, Native imagery is usually abstract and anachronistic. It denotes erasure while fulfilling warrior and/or wisdom fantasies. The Land O'Lakes logo, adopted in 1928, embodies the latter (Heimerman, 2018) (see an artist's parody in Figure 1).

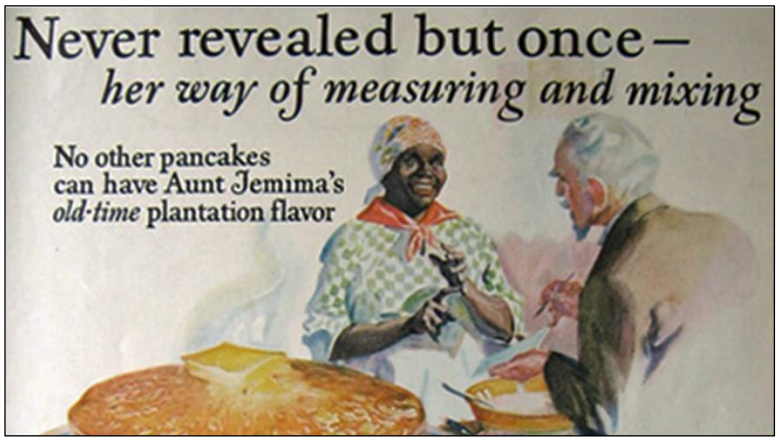
Being Fed Rations and Shame

The modernizing shift in the 1950s to increasingly processed industrial foods eventually spread to all U.S. communities and, more recently, the globe. Euphemistically, this has been called the "nutrition transition" (Popkin, 2017). These foods tend to be high in salt, fat, and sugar, and low in nutrients, contributing to the high prevalence of chronic disease in the U.S. (Boersma et al., 2020).

Such foods arrived early on reservations. First, they were courtesy of federal rations. Then and to the present, the USDA Commodity Supplemental Food Program provides them. Eating these commods, as we call them, yields "commod bods," with concomitant disproportionate morbidities and death rates (Vantrease, 2013). Native Americans invented frybread out of the salt, flour, and lard provided in original rations. This survival food has become embedded in today's Native American cultural foodways. Now that most Americans—of every racial group—are eating more than enough calories and fats, it would be hard to argue that frybread is part of a healthy diet from any biological standpoint. Because of its negative health impacts and colonization origins, some Native food sovereignty leaders suggest reconsidering frybread's role in Native foodways today (Mihesuah, 2016).

Shaming of soul food, i.e., African American foodways (Henderson, 2007; Nettles, 2007; Rankins et al., 2007), adds insult to these injuries. For example, CP recalls an African American presenter at a public health conference saying he no longer eats watermelon, though he loves it, because he

Figure 1. A 1920s Aunt Jemima Pancake Mix Advertisement for "Plantation Flavor"



Source: https://namerology.com/2020/06/19/brand-curse-the-name-jemima-in-america/

cannot dissociate it from a lifetime of white racist taunting about the fruit (see, e.g., Black, 2014). Fried chicken has been similarly deployed in racist tropes. For example, a newspaper columnist describes her struggle to reclaim the food's African American history along with her love of eating it, writing, "that we've been bullied and made to feel ashamed of it is one of the biggest outrages in culinary history" (Thompson, 2020, para. 29). Traditional Native foods and soul foods offer the original slow, local, farm- and forest-to-plate foods now venerated by foodies and nutritionists. All original Indigenous food and traditional vegetable-based West African stews are nutrient-rich. Enslaved people invented fruit- and vegetable-based desserts in order to satisfy White sweet tooths. Prior to enslaving and colonizing, the English elite had viewed leafy and root vegetable staples—which anchored the diets of Black, Native, and poor Whites—as lowly food of the poor. This resulted in diet-related illness such as gout among the English ruling class (Opie, 2018). Without irony, one nutrition study calls for "modifying traditional soul foods" by suggesting stews that are "heavy on vegetables and light on meat" (Rankins et al., 2007, p. S9). Overall, many foodways that West Africans and their enslaved descendants brought to the U.S. have been embraced as general Southern and American foods, ignoring their roots in African culture (Deetz, 2017).

In addition, the foundational food for much of Native America—corn—has been bred and processed into lower-nutrient, homogenous, genetically modified forms. Corn in the U.S. now serves mainly as an ingredient in highly processed foods, feed for industrialized beef and pork production, or as fuel rather than food.

Overall, the "nutrition transition" for our communities has been magnified by decades of supplanting traditional foods with commodities and the heavy marketing of fast food to African American communities (Demby, 2014). African and Native Americans suffer higher rates of chronic stress, substantially caused by racism and disproportionate food insecurity and poverty. This amplifies the effects of poor diet on chronic disease (Bale & Jovanovic, 2020; Gregory & Coleman-Jensen, 2017; Teufel-Shone et al., 2018).

Overall, for us, food is more than nutritionism (Scrinis, 2008). As one African American elder and foodways expert said to LL:

> Once they stop you from doing it and carrying on with soul food, you ain't got nothing left. What you got left? They taking everything away from you. So you just got to keep . . . you keep. Just like they keep they Confederate flag. . . . We're gonna keep our soul food.

Even if not always biologically nutritious, traditional foodways and survival foods can be a nourishing source of healing, comfort, and wholeness for us.

Reclaiming and Restoring (1960s–2000s)

Food has always played a role in oppressing us, but also in our resistance and reclaiming lifeways and foodways. Starting in the late 1950s, resistance movements in our communities gained people and power, including via foodway strategies.

Organizing with Food and Foodways

Food and foodways are threaded throughout our fights for justice and sovereignty. One strand has been simply the logistics of feeding the front lines. This includes, for example, decades of cooking by and for Black civil rights organizers (Schute, 2012), the Black Panthers inventing school breakfast programs (Gebreyesus, 2019), protesting Jim Crow laws by sitting at lunch counters, air-dropping food to the Wounded Knee occupation (Levin, 1998), and setting up kitchens to feed Standing Rock protesters starting in 2016 (Estes, 2019).

Another strand is fighting for access to food and foodways, which includes the lands and waters that nourish us. This involves extensive and ongoing legal battles for honoring treaty obligations for access to lands, waters, and traditional food sources. A recent major win, *McGirt v. Oklahoma*, restored half of that state to the Creek Nation, belatedly honoring an 1833 treaty. The struggle also includes securing compensation for decades of inequitable USDA services to our farmers, via winning *Pigford vs. Glickman* and *Keepseagle vs. Vilsack*. Some funding

from the latter has been used to establish the Native American Agriculture Fund,[1] which is being invested in Native American food sovereignty projects. Its list of grantees[2] serves as a map of the healing and restoration work in Native foodways across the country.

The central warp for the weft of these threads is continuing, recovering and reclaiming our foods and food traditions. Our communities have led these efforts since at least 1619, with initiatives such as White Earth Land Recovery Project[3] (founded 1989) and Detroit Black Community Food Security Network[4] (2006). National food justice and sovereignty organizations began forming in the 1980s. Among Native Americans this includes the First Nations Development Institute[5] (founded 1980), Intertribal Agriculture Council[6] (1987), Indian Land Tenure Foundation[7] (2002), Indigenous Food and Agriculture Initiative[8] (2013), Native American Food Sovereignty Alliance[9] (2014), and NCAI's Tribal Food Sovereignty Advancement Initiative[10] (2019). African American national organizing groups, with founding dates where available, include the National Black Farmers Association[11] (1995) and many other landownership retention organizations, Southeastern African-American Farmers Organic Network[12] (2006), Black Urban Growers Association[13] (2009), Growing Food & Justice For All Initiative,[14] and the National Black Food and Justice Alliance.[15] These groups are working to halt and to reverse what a journalist has called "the great land robbery" of the past century (Newkirk, 2019), in which 98% of African American farmers lost land via a second round of take-over by Whites.

The movement to reclaim our foodways includes many cookbooks, including award-winning ones (Lewis, 1976; Sherman & Dooley, 2017; Tipton-Martin, 2019). Because preventing literacy was among the strategies for oppressing enslaved people, Black chefs largely relied on oral history and experience for cooking (Harris, 2011). What is probably the first African American-authored cookbook appeared in 1881, *What Mrs. Fisher Knows About Old Southern Cooking* (Fisher, 1881). Some White Southerners who learned these foodways from Black people who served them took credit for and published cookbooks with their recipes (Harris, 2011; Wallach, 2019). For Native Americans, recipes were always oral, shared by demonstration and practice. What may have been among the first written collections by a Native person was published in the early 1990s (Hunt, 1992).

The movement includes a growing body of restories like the present paper, including writings about African American (Garth & Reese, 2020; Miller, 2013; Opie, 2008; Penniman, 2018; Reese, 2019; Twitty, 2017, Wallach, 2015, 2019; White, 2018; Williams-Forson, 2006; Zafar, 2019) and Native American foodways (Berzok, 2005; LaDuke, 1999; Mihesuah & Hoover, 2019; Nelson, 2008; Settee & Shukla, 2020). This journal has published a special issue, *Indigenous Food Sovereignty in North America* (Hilchey, 2019). These writings are in addition to a growing number of peer-reviewed, grey, and historical fiction literatures, including books for children (Erdich, 1999–2016; Rhodes, 2013).

Example: Facing Down Food Marketing

Anti-racist organizing has included fighting against racist imagery used in marketing and branding, such as by sports teams and food corporations. For example, artists David Bradley and Betya Saar indict the Land O'Lakes and Aunt Jemima marketing imagery, respectively, in the artworks shown in Figures 2 and 3.

Saar wrote about this piece, saying,

[1] https://nativeamericanagriculturefund.org/
[2] https://nativeamericanagriculturefund.org/2020-grantees/
[3] https://www.welrp.org
[4] https://www.dbcfsn.org
[5] https://www.firstnations.org
[6] https://www.indianag.org/
[7] https://iltf.org/
[8] https://indigenousfoodandag.com/
[9] https://nativefoodalliance.org/
[10] http://www.ncai.org/initiatives/partnerships-initiatives/food-sovereignty
[11] https://www.nationalblackfarmersassociation.org/
[12] http://saafon.org/
[13] https://www.blackurbangrowers.org/
[14] https://www.facebook.com/growingfoodandjustice/
[15] http://www.blackfoodjustice.org/

Figure 2. David Bradley, "Land O Bucks, Land O Fakes, Land O Lakes," 2006.

Source: Denver Art Museum.

Figure 3. Betye Saar, "The Liberation of Aunt Jemima," 1972.

Source: Berkeley Art Museum.

I found a little Aunt Jemima mammy figure, a caricature of a black slave, like those later used to advertise pancakes. She had a broom in one hand and, on the other side, I gave her a rifle. In front of her, I placed a little postcard, of a mammy with a mulatto child, which is another way black women were exploited during slavery. I used the derogatory image to empower the black woman by making her a revolutionary, like she was rebelling against her past enslavement. (Saar, 2016, para. 14)

Suffocating in a Pandemic (2020)

The oppression and trauma inflicted on our communities for over 400 years has produced enormous health inequities between African and Native Americans and Whites. Whether it is police knees on our necks, wildfire smoke in our lungs, or suffocation by COVID-19, we are fighting for breath.

Native women are more than twice as likely, and Black women more than three times as likely, to die in childbirth as White women (Petersen et al., 2019). Our communities also suffer much higher rates of diabetes, obesity, high blood pressure, child asthma, and other chronic health conditions than Whites (Akinbami et al., 2014; Centers for Disease Control and Prevention, 2005; Porter et al., 2019). This is in part because of the devastation to our food systems and associated historical traumas previously described (Belanger et al., 2020; Gray et al., 2020). We are exposed to more air pollution than White communities. For example, in Minnesota, 91% of communities of color breathe air above risk guidelines, compared with 32% for the state overall (Minnesota Pollution Control Agency, n.d.). We also disproportionately live and/or work in crowded conditions—including in the food industry—that make us more vulnerable to the COVID-19 virus. As a result, our death rates from the pandemic, so far, are about double that of Whites (Laster Pirtle, 2020; Webb Hooper et al., 2020).

The recession caused by COVID-19 is the

most unequal in U.S. history (Long et al., 2020). COVID-19 exposed core weaknesses in the dominant industrialized, centralized, globalized and just-in-time food system (Hamilton et al., 2020). These weaknesses are in addition to widely known problems that compromise the nutritional capability of future generations by using up resources such as soil, oil, and water. And still there are ongoing threats of the further erasure of cultural food traditions.

However, Native and African American communities also lead the way in building solutions to these problems, finding ways not only to cope, but even to thrive, amid these systemic catastrophes. For example, two women in Wind River Indian Reservation launched a project that provides garden boxes, supplies, and growing lessons via online conference to help people grow their own food (Grow Our Own 307, 2021). The Quapaw Nation's beef processing facility kept meat in stores while still protecting their workers during the pandemic by prioritizing community safety over speed and profit (Native Business staff, 2020). A community garden in an African American, food-insecure community in Indianapolis quickly pivoted from volunteer growing operations to a youth farm with paid senior workers, to continue providing fresh food to the community while keeping workers safe (Lawrence Community Gardens, 2021). These are merely three of thousands of community-led projects that demonstrate solutions that African and Native American foodways offer for health, equity, and sustainability.

Knowing and Showing How to Thrive (Our Ancestors to Our Grandchildren)

Our communities grow gardens and farms, preserve food and save seeds, form cooperatives and found food hubs, host and sell at farmers markets, and start soul food and indigenous cafes. We know how to use every part of an animal (Hoover, 2020; Opie, 2008). Some African Americans lead vegan responses to the ethical and environmental travesties of concentrated animal feeding operations (Harper, 2013; Terry, 2009).

Home gardens especially have anchored our family strategies to nurture ourselves. For example, Eastern Shoshone and Northern Arapaho people in Wind River Reservation report (Budowle et al., 2019) that:

> A long time ago, if you didn't have a garden, you didn't eat. (p. 153)
>
> When I was growing up my folks had a big old huge garden, and we never went to town, bought candy or anything. When we got hungry, we'd just run out to the garden and get us a turnip or carrots. (p. 154)
>
> I never knew how to go to the grocery store growing up. We ate everything canned. And now, I'm trying to learn how to do all that stuff after all these years. It is a lot healthier. People were healthier back then. (p. 155)

LL heard similar stories from African American elders. One recalled, "Besides my mom, other people had their own garden, everybody had a little space. . . . Back then you didn't go to the store 'cause you had your own garden."

We will close this circle with two examples of historical foodway strategies that could help save our food systems: using good fire and revisioning land access. Our final words point to paradigms and policies to help make these kinds of changes possible. In the face of COVID-19, we need them, for all people, even more than ever (Worstell, 2020).

Example: Using Good Fire to Nurture Foodways

For millennia, Indigenous people in North America have intentionally and strategically used controlled burning in forests and prairies to renew foodways, maintaining habitats and life cycles of food and medicine sources. These practices were especially important in the West (Anderson, 2013). They reduced the risk of catastrophic western wildfires, like we are seeing today, that spread uncontrollably and burn everything to the ground.

"Prescribed fire is medicine," says a research ecologist with Karuk heritage and Yurok family (Cagle, 2019, "Fire is in our DNA," para. 5). For over a century Whites suppressed these traditional land care practices. Forest and land management policy has been to extinguish fires, any fires, imme-

diately. But recently, as one headline puts it, "To Manage Wildfire, California Looks to What Tribes Have Known All Along" (Sommer, 2020). Ron Goode, tribal chairman of the North Fork Mono, recalls his mother getting in trouble with the fire department for using good fire. He explains, "We don't put fire on the ground and not know how it's going to turn out. That's what makes it cultural burning, because we cultivate … What we're doing out here is restoring life" (Sommer, 2020, para. 6). As the director of natural resources of the Karuk tribe states, "The solution to the devastating west coast wildfires is to burn like our Indigenous ancestors have for millennia" (Tripp, 2020, para. 14).

Example: Proposing 40 Acres

As the Civil War raged, the U.S. developed plans to confiscate land and other property of those who rebelled against the country. In 1861, editors of a Black-run paper noted that when the war ended "there will be four million free men and women and children, accustomed to toil." They argued that they should be given the confiscated land[16] with which to rebuild their new lives.

As the war was coming to a close, 20 Black ministers and other lay leaders met with General Sherman and Secretary of War Stanton in Savannah, Georgia, in January 1865. Their spokesman, Reverend Garrison Frazier, who had been enslaved until purchasing his freedom in 1857, said, "The way we can best take care of ourselves is to have land, and turn it and till it by our own labor … and we can soon maintain ourselves and have something to spare. … We want to be placed on land until we are able to buy it and make it our own" (Gates, 2013, para. 12). He suggested that this land be separate from Whites, "for there is a prejudice against us in the South that will take years to get over" (Gates, 2013, para. 12).

Four days later, Sherman issued Special Field Order No. 15, specifying that about 400,000 acres on the coasts of South Carolina, Georgia, and northern Florida were to be confiscated from Confederate traitors to the U.S. and allocated to newly free Blacks to settle and farm, on affordable rent-to-own terms. The area was quickly dubbed the "Sherman Reservation." The order stated that in the area "the sole and exclusive management of affairs will be left to the freed people themselves" (Sherman, 1865, para. 2).

Soon, 40,000 freed Blacks had settled the land. However, President Johnson rescinded the order in late 1865 and returned the land to White Confederates. Motivated in part by growing claims that the substance of the order had been—to use today's terms—fake news, a contemporary scholar castigated the aftermath of the order: "The expectations of the blacks were justified by the policies of the Government…rascals took advantage of the expectations to swindle the ignorant freedmen" (Fleming, 2020/1906, p. 1).

Scholars have calculated what wealth these lands would have generated for African Americans had they remained in their hands. Adjusting for inflation and interest, this would be about US$1.6 trillion today, or about US$36,000 for every African American person in the U.S. More importantly, "had the promise of 40 acres been fulfilled, one can readily imagine a completely different U.S. history unfolding over the course of the subsequent century, a history in which race did not intertwine with dense inequalities" (Darity, 2008, p. 661).

Providing Paradigms and Policies for Change

Water is life. It takes a village to raise a child. We are all related. Plants and animals are also our relatives. These are paradigms that would lead us to care for the water, soil, air, and all living things that give us life.

We do not mean to romanticize. With racist legacies of poverty, violence, and stress undermining our own communities, such traditional ways are only aspirational for many.

To help reach such aspirations, food policy recommendations come from the Native Farm Bill Coalition and the Movement for Black Lives (M4BL). Building from a report of Indigenous issues and opportunities in the farm bill (Hipp & Duran, 2017), proposals include allowing self-governance of USDA programs by sovereign

[1] This land had been taken in the previous centuries from the Creeks and Seminoles, who were killed, forced to move to reservations in what is now Oklahoma, or died from privations on the journey.

nations, supporting Tribal departments of food and agriculture, providing relief on farm loans due during the pandemic, recognizing traditional ecological knowledge conservation practices, and including more variety and quantity of traditional foods in assistance programs.

Food policy planks of the M4BL include:

- A right to restored land, clean air, clean water, housing, and an end to the exploitative privatization of natural resources—including land and water. We seek democratic control over how resources are preserved, used and distributed, and do so while honoring and respecting the rights of our Indigenous family.
- Low-interest, interest-free, or federally guaranteed low-interest loans to promote the development of cooperatives (food, residential, etc.), land trusts, and culturally responsive health infrastructures that serve the collective needs of our communities.
- Protections for workers in industries that are not appropriately regulated, including domestic workers, farmworkers, and tipped workers, and for workers—many of whom are Black women and incarcerated people—who have been exploited and remain unprotected (M4BL, n.d.)

Now What?

Everything we discussed in the *Reclaiming and Restoring* section provides some direction and reasons for hope for our communities and our foodways. For example, in *McGirt v. Oklahoma*, the Supreme Court finally has directed the government to enforce at least one of the over 500 treaties it has broken. In the face of police brutality, the Black Lives Matter movement has mobilized people of all racial groups for justice for all people of color. Even Wyoming, by many measures the most politically conservative state in the U.S., had marches in every town we can name, some continuing into fall 2020. Under pressure from this work, the corporations that contrived Aunt Jemima, Uncle Ben, and the Land O'Lakes Indian maiden are retiring such co-optations, as are some major sports teams. Reparations for enslavement are on the table in serious policy discussions for the first time (Ho, 2020).

Nevertheless, the scale and scope of the brutality and theft in our story dwarf the steps taken and proposed for repairing damage and redressing injustices. For example, as ML reports about the Land O'Lakes victory, people are saying they took away the Indian and kept the land. Native and African American communities fight despair with nourishment and attend to the work to restore, reclaim, and renew our traditional foodways. A Rarámuri scholar of Indigenous foodways says that "eating is not only a political act but also a cultural act that reaffirms one's identity and worldview" (Salmón, 2012, p. 8) each time one sits down to eat a culturally rich food.

We close with the thoughts of two elders we learned from during our research:

> Being able to control what we eat is also like saying we have control over our lives, ourselves.
>
> —*African American food expert and elder*

> I hope this is a revolution.
>
> —*Northern Arapaho food expert and elder*

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Getting the food out: A content analysis of the online communication of Seattle food banks during the initial response to COVID-19

THE IMPACT OF COVID-19 ON FOOD SYSTEMS
COSPONSORED BY INFAS:

Inter-institutional Network for Food and Agricultural Sustainability

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Abstract

The COVID-19 pandemic has threatened food availability, accessibility, and acceptability. Food banks are experiencing increased demand at the same time as operational challenges due to COVID-19. The objective of this study was to assess if and how food banks have utilized web and social media platforms to communicate dynamic information relevant to food security to a growing clientele amid a widespread emergency. We conducted a content analysis of web and social media communications made by 25 Seattle food banks in April and May 2020, which corresponded with the two full months of Washington Governor Inslee's initial stay-at-home order (March 25–May 31, 2020). We developed and applied a codebook to assess if communications contained information related to food availability, accessibility, and acceptability in the context of COVID-19, as well as other descriptive information, such as changes to food bank operations. Our findings show that food banks in Seattle communicated the most on web and social media platforms about food availability and accessibility, while they communicated less commonly about food acceptability. Past disasters have exposed the need to include food acceptability in disaster planning to ensure that emergency food can be equitably distributed and

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consumed by diverse populations. Our results suggest that food banks may wish to periodically assess the main themes of their online communications and the reach of their different platforms during the COVID-19 pandemic as one strategy to facilitate community food security.

Keywords
COVID-19, Pandemic, Disaster, Food Banks, Food Security, Social Media, Emergency Communication

Introduction

Food security is defined as occurring "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization of the United Nations [FAO], 1996). Food insecurity is a significant public health concern given its association with a number of poor health outcomes, including diabetes, hypertension, and depression (Gundersen & Ziliak, 2015). The FAO identifies three commonly accepted dimensions of food security: food availability, accessibility, and acceptability (FAO, 2006) (Table 1).

The ongoing COVID-19 pandemic has dramatically increased food insecurity in the United States by threatening these three components of food security (Bauer, 2020; Naja & Hamadeh, 2020; Niles, Bertmann, Morgan et al., 2020) (Table 1). Challenges to maintaining food security during the pandemic are multifold. Economic barriers like skyrocketing unemployment and lost wages have been compounded by physical barriers such as avoidance of grocery stores to reduce potential COVID-19 exposure (Kochhar, 2020; Niles, Bertmann, Morgan, et al., 2020). Moreover, we have seen an intensification of prepandemic racial and ethnic disparities in food insecurity, particularly for Black and Hispanic households (Wolfson & Leung, 2020b).

Food banks have served as an important source of emergency food aid in the context of the pandemic. In this exploratory study, we assess the web and social media communications of food banks based in Seattle, Washington (WA)—the first U.S. city hit by the COVID-19 pandemic—during its initial lockdown period. We aimed to determine the presence and frequency of client-focused messaging around the three core components of food security (food availability, acceptability, and accessibility) to identify opportunities for improvement in holistic communications in other contexts, subsequent pandemic phases, and future disasters and public health emergencies.

Learning from Past Disasters

While there has not been a pandemic of this scale in the past 100 years, more recent disasters (e.g.,

Table 1. The Three Components of Food Security (Food Availability, Accessibility, and Acceptability) with Examples of Disruptions Due to Past Disasters and the Ongoing COVID-19 Pandemic

Component of food security	Food availability	Food accessibility	Food acceptability
Definition	Food is present throughout production, distribution, and exchange (FAO, 2006)	Food is present, and the community can acquire it without barriers (physical, economic, etc.) (FAO, 2006)	Food is safe, nutritious, and meets cultural and religious needs (FAO, 2006)
Example of disruption from past disaster	Multiple retailers did not have WIC-authorized foods in stock after Hurricane Sandy (Zeuli & Nijhuis, 2017)	During Winter Storm Jonas, obstructed roads prevented people from accessing food distributors (Chodur et al., 2018)	FEMA nutrition aid to Puerto Rico did not meet DGA Nutrition Guidelines after Hurricane Maria (Colón-Ramos et al., 2019)
Example of disruption from COVID-19	Reduced donations of fresh produce to food banks (Conlin et al., 2020)	Clients are unwilling or unable to come to the food bank due to social distancing requirements (Niles, Bertmann, Morgan, et al., 2020)	Prepackaged, to-go food boxes for COVID-19 limit client choice of food items (Sheil, 2020)

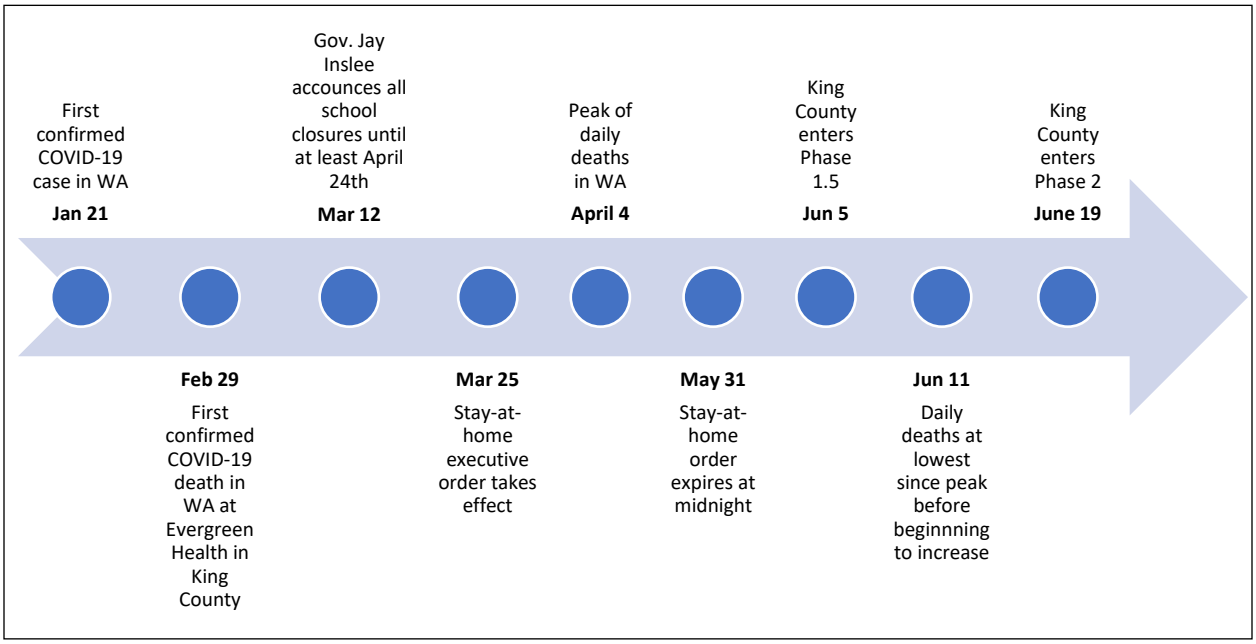
extreme weather events) have demonstrated potential impacts to food security across the three domains of food availability, accessibility, and acceptability. Table 1 defines each element of food security and provides an example of the disruption of each element from both prior disasters and the COVID-19 pandemic. For example, 2016 Winter Storm Jonas in Baltimore, Maryland, disrupted food access by obstructing roads, preventing people from using cars, bikes, and buses. The obstructed roads also led to an overall decrease in food availability by disrupting food distribution (Chodur et al., 2018). Past disasters and emergencies have especially exposed the challenge and lack of priority for providing culturally, medically, and nutritiously *acceptable* emergency food to vulnerable populations. For example, Hurricane Maria demonstrated the importance of considering food acceptability in emergency food programs. Responding to social media criticisms of the unhealthy federal food aid to Puerto Rico following that hurricane, Colón-Ramos et al. (2019) analyzed FEMA emergency food items that were distributed. Using the Dietary Guidelines for Americans (DGA) as a benchmark, Ramos found that 41% of FEMA food items fell into the 'snacks and sweets' category, and 46% were high in sodium, added sugars, or saturated fats (Colón-Ramos et al., 2019). Food aid to Puerto Rico did not meet DGA guidelines, leaving this already vulnerable population recovering from a devastating hurricane without proper nutrition. Following Hurricane Sandy in 2012, the Metropolitan Council on Jewish Poverty in New York City exposed the lack of Kosher and Halal foods in emergency food banks and pantries, which left many Jewish and Muslim families without emergency food options (Karoub, 2014). The Jewish nonprofit worked with New York lawmakers, eventually leading to a provision in the 2014 farm bill that required the federal government to supply labeled Kosher and Halal emergency foods to food banks (Senator Kirsten Gillibrand, 2016).

Food Insecurity During the COVID-19 Pandemic

Food insecurity is rising above prepandemic levels in the United States, particularly among households with young children, low-income communities, and communities of color (Bauer, 2020; Drewnowski et al., 2020; Niles, Bertmann, Morgan, et al., 2020; Wolfson & Leung, 2020a). Researchers in Vermont administered a statewide survey and found a nearly one-third increase in food insecurity from the year before the COVID-19 outbreak to after March 8, 2020 (Niles, Bertmann, Belarmino, et al., 2020). In their sample of 3,219 respondents, those who experienced a job loss were three times more likely to be food insecure (Niles, Bertmann, Belarmino, et al., 2020). The Washington State Food Security Survey, which was administered from June 18 to July 31, 2020, found that 30% of 2,621 Washington respondents were food insecure. Fifty-nine percent of those who were food insecure had children (Drewnowski et al., 2020).

With the loss of income and increasing food prices, people with low food security are more likely to struggle to maintain the recommended two-week supply of food to avoid excess grocery store trips during the COVID-19 outbreak (Johansson, 2020; Wolfson & Leung, 2020a). Sixty-four percent of respondents in the Washington State Food Security Survey reported concern with increasing food prices, and 29% reported that they could not afford to stockpile food (Drewnowski et al., 2020). These economic threats to food security are compounded by physical barriers to food due to COVID-19 precautions. Social distancing guidelines and stay-at-home orders target older adults and people with preexisting conditions due to their increased vulnerability to COVID-19 complications, posing challenges to these populations accessing food in person at stores and community meals (Naja & Hamadeh, 2020; Wolfson, Leung, & Kullgren, 2020). People with special diets have also been reported to have challenges meeting their dietary needs during COVID-19 (Niles, Bertmann, Morgan et al., 2020). Closures of public schools around the country in response to coronavirus have also led to food instability for the millions of households whose children qualify for free or reduced lunch, with disproportionate impacts for Black and Hispanic households, who are more likely to qualify for free or reduced lunch (Kinsey et al., 2020). Researchers estimate that more than a billion school meals were missed due to COVID-19 as of May 1, 2020 (Kinsey et al., 2020).

Figure 1. Timeline of COVID-19 in Washington from First Confirmed Case in the State to Entering Phase 2



Source: IHME, 2020; King County, 2020a; King County, 2020b; KING 5 Staff, 2020.

Seattle, WA: An Exploratory Analysis

Washington quickly became an early epicenter of the COVID-19 pandemic after its first confirmed case on January 21, 2020 (Figure 1). On March 12, Governor Inslee announced all schools would be closed until at least April 24, and on March 23, he announced the stay-at-home executive order (McNerthney, 2020). The peak of daily deaths in Washington was on April 4, 2020 and by June 5, 2020, King County entered Phase 1.5 with limited reopenings of businesses (The Institute for Health Metrics and Evaluation [IHME], 2020; King County, 2020b). On June 11, 2020, Washington saw its lowest daily deaths since the peak, and King County entered Phase Two on June 19 with continued openings of businesses and small gatherings (IHME, 2020; King County, 2020b). Here, we describe the pre-COVID-19 food-insecurity landscape, as well as COVID-19's impacts on food insecurity.

In 2018, the rate of food insecurity in King County, Washington, of 9.5% was overall lower than the national average (11.5%) (Feeding America, 2020). Yet in Seattle, food security is starkly divided along racial and neighborhood lines, exposing the immediate need to combat racism in both our food system and disaster response. A report from the Seattle City Council found that neighborhoods along the Duwamish waterway overlapped on all three factors of a Healthy Food Priority Area: low income, high percentage of unhealthy food retailers, and longer travel times to healthy food retailers (Bolt et al., 2019). Using the Seattle Healthy Food Survey, they also found that neighborhoods with more Black and Hispanic residents had lower healthy food availability scores. Among Seattle residents, the highest levels of food insecurity were found at an income level below 200% of the federal poverty line (FPL), which is the main eligibility criteria for the Supplemental Nutrition Assistance Program (SNAP), known as Basic Food in Washington State. However, food insecurity does not fully disappear until household income reaches 300% of the FPL, and 400% for families with young children and people of color, indicating a gap between those who are food insecure and those who are eligible to receive SNAP benefits (Bolt et al., 2019). In 2017, about 13,400 residents in Seattle had too much income to qualify for SNAP but experienced food insecurity, and in 2018, 42% of food-insecure residents in

King County were above the 200% FPL cutoff for SNAP (Feeding America, 2020b).

Pre-COVID-19, subsidized lunch programs provided another source of consistent food for students in Seattle, with 32.7% of students in Seattle Public Schools in 2017 eligible for free and reduced lunch (Seattle Public Schools, 2019). Black, Indigenous, and People of Color (BIPOC) students and families are disproportionately represented in free and reduced lunch. In October 2018, 83% of Black students and 59% of Hispanic students in Seattle Public Schools were enrolled in free and reduced lunch, as opposed to only 8% of white students (Seattle Public Schools, 2019). Seattle Public Schools closed their buildings to students due to COVID-19 on March 12 for the remainder of the 2019–2020 school year. Students began the 2020–2021 school year remotely until initiating a rolling, partial reopening beginning in March 2021, yet students still did not eat lunch on campus (Seattle Public Schools, 2021a). As a result, the district responded with a commitment to maintain distribution of free and reduced meals, as well as include all Seattle Public School students, parents, and guardians, regardless of income. The district distributed free sack breakfasts and lunches on weekdays at established sites and along bus routes around the city through the end of the school year (Seattle Public Schools, 2020b). Seattle Public Schools partners with the Backpack Brigade and Food for Schools to provide weekend food support for all qualified students. Over the summer of 2020, students also received emergency meal support, and families whose children qualified for free and reduced lunch received extra food benefits through Pandemic Electronic Benefits Transfer (P-EBT) (Seattle Public Schools, 2020b). Eligible students were able to access free meals in the summer of 2021 (Seattle Human Services, 2021a), and all Seattle Public School students, regardless of income, will be provided with free school meals in the 2021-2022 school year (Seattle Public Schools, 2021b).

Food Banks and COVID-19

Food assistance organizations are an essential part of Seattle's food system in non-emergency times, in response to a 9.5% food insecurity rate in King County in 2018 (Feeding America, 2020a). The food safety net in Seattle consists of food banks and food pantries, federal assistance programs, school meal programs, home delivery, and any other nonprofits aimed at directly providing food. Even before COVID-19, food banks had experienced increased demand, particularly for older adults and people experiencing homelessness (Bolt et al., 2019). In a report by the city of Seattle, 60% of food banks surveyed said that they had had a rise in food bank demand over the last year, and among these respondents, 39% reported that their funding had remained the same (Bolt et al., 2019). Sixty-five percent of food banks surveyed had to reduce their variety of food and 41% had to reduce volume of food (Bolt et al., 2019).

During the coronavirus pandemic, food banks are tasked with supporting food security while adapting to the barriers presented by COVID-19 and the increased demand for food. Feeding America has reported that two of five people seeking food during the pandemic are first-time visitors to its network of food banks (Morello, 2020). An estimated additional 17.1 million people will need food support throughout the pandemic, which equates to about a 46% increase over prepandemic times (Feeding America, 2020b).

As the markets for restaurants and catering shut down, distributors struggled to keep up with repackaging and shifting to retail, resulting in food waste (Larochelle, 2020; Yaffe-Bellany & Corkery, 2020). Meanwhile, panic-buying earlier in the pandemic stripped grocery stores of staples, resulting in less donated inventory for food banks. These shocks in the food supply chain resulted in increased food waste from producers while grocery stores and food banks have empty shelves (Conlin et al., 2020). In response, many food banks are building new partnerships with farms and businesses to supplement their produce and food supply (Morello, 2020). For example, the USDA Farm to Family Food Box Program partnered with food distributors of all sizes to purchase crops that would have otherwise been sold to restaurants or bulk providers, preventing food waste. Distributors then packaged products into family-sized boxes and distributed them to food banks and nonprofits (USDA Agricultural Marketing, 2020). When the

program was up and running, lawmakers questioned the efficacy of the program and the USDA's choice of distributors, many of which have little experience distributing produce (Mccrimmon, 2020).

Food banks also rely heavily on volunteer labor but are facing shortages of volunteers, a large proportion of whom are older adults who are at higher risk for COVID-19 complications (Kulish, 2020). During these challenging times, food banks are also changing their operations to minimize the spread of COVID-19, including switching to prepackaged boxes and implementing social distancing guidelines (Morello, 2020).

Food Bank Communication During COVID-19

During these volatile times, as food banks' operations and supply chains shift, reliable communication between food banks and clients is essential. Governments and other emergency organizations have included social media as part of their comprehensive communication campaigns for emergencies to varying degrees (Scott & Errett, 2018). Many food banks use their websites and social media to communicate with their clients on a regular basis. Yet, it remains unknown if and how food banks have utilized web and social media platforms to communicate dynamic food security–relevant information to a growing clientele amid a widespread emergency.

In response, we conducted a cross-sectional content analysis of website and social media posts from Seattle food banks early in the COVID-19 emergency to assess the presence of information on the three core components of food security to clients: food availability, acceptability, and accessibility. Through this exploratory, descriptive study, we aim to identify the types and frequency of information food banks are communicating to clients and opportunities for food banks and other emergency food organizations to enhance their emergency communication.

Methods

We conducted a content analysis of web and social media communications made by Seattle food banks in April and May 2020. We chose these months because they cover almost all of Governor Inslee's stay-at-home order period, which expired on May 31, 2020 (Figure 1).

All food banks included were members of the Seattle Food Committee, a coalition of food banks in Seattle (Seattle Food Committee, n.d.). After excluding one due to its permanent closure, 26 food banks were included in our study. Each food bank's website and social media pages (Facebook, Instagram, and Twitter) were reviewed, as available. We elected to only capture data from the social media pages of stand-alone food banks to ensure that all posts we captured related to emergency food.

Websites

Twenty-five of the 26 food banks had websites as of May 11, 2020. For organizations that function primarily as food banks (n=11), all posts related to COVID-19 were captured via screenshot (see Appendix B for the website protocol). If the food bank was part of a larger organization such as a church or other nonprofit, only posts that related to the food bank or emergency food were captured via screenshot (n=14). We conducted two cross-sectional data captures on April 10 and May 11, 2020.

Social Media

Eleven of the 26 organizations had social media pages dedicated to their food bank. Of these social media pages, all posts on Facebook, Instagram, and Twitter from April and May 2020 were captured via screenshot.

We developed a codebook *a priori* to assess whether communications contained information related to food availability, accessibility, and acceptability in the context of COVID-19, as well as other descriptive information, such as changes to hours and populations served (see the codebook in Appendix A).

Two coders (AI and AK) independently applied the codebook using NVivo software (QSR International). Only text content was coded. The application of the codes by individual coder was compared and discrepancies were adjudicated through a consensus-building discussion (Hill et al., 1997, 2005). A Microsoft Excel database was created to record the presence or absence of content

on availability, accessibility, and acceptability in each post, stratified by date, organization, and platform (i.e., website, Twitter, Instagram, or Facebook). Summary statistics were calculated to assess the proportion of organizations and proportion of posts by organization that contained relevant information by platform.

Results

Operational Changes Due to COVID-19

In addition to communications on food availability, accessibility, and acceptability, we coded website and social media posts for descriptive information. Table 2 reports the percentage of food banks that communicated operational impacts due to the pandemic on either their websites or social media. The majority of food banks in our sample communicated changes to how clients interact with the food bank (e.g., walk-up windows, social distancing in lines) and the presentation of food to clients (e.g., prepackaged boxes to limit exposure). About half of the food banks reported a change to their hours of operation due to COVID-19, and 36% communicated a change in location.

By Food Bank—Websites

Of the 25 food banks with websites, the majority communicated at least once about food availability and accessibility on their website. Far fewer food banks (36%) had any communication about food acceptability in their web posts (Table 3).

By Food Bank—Social Media

Of the 11 food banks in our sample with standalone social media pages, all had Facebook pages, nine had Instagram accounts, and 10 had Twitter accounts. Most of these food banks discussed availability and accessibility at least once on one of their social media pages. Ten of 11 food banks (91%) communicated at least once about food availability in the context of COVID-19, and eight of 11 (73%) communicated about accessibility. In April and May, only two foodbanks (18%) discussed food acceptability (Table 4).

Website Posts

We identified and captured 100 unique web posts on April 10 and May 11. Across all food banks, 'food accessibility' was the most common theme communicated in COVID-19–related website posts in April and May (Table 5). Forty-eight percent of COVID-19–related website posts across all food banks discussed food accessibility. Ninety-eight percent of posts that communicated accessibility related to 'physical solutions' to food access

Table 2. Proportion of Seattle Food Banks (*N*=25) that Communicated Any Operational Changes Due to COVID-19 in April and May 2020

Variable	% of Food Banks (*n*)
Change to Hours	44% (11)
Change of Location	36% (9)
Client Interaction with Food Bank	68% (17)
Presentation of Food to Client	64% (16)

Table 3. Proportion of Seattle Food Banks (*N*=25) that Had Any Website Communication on Themes Related to Food Availability, Accessibility, and Acceptability in April and May 2020

Component of food security	% of Food Banks (*n*)
Availability	60% (15)
Accessibility	64% (16)
Acceptability	36% (9)

Table 4. Proportion of Seattle Food Banks that Had Any Social Media Communication on Themes Related to Food Availability, Accessibility, and Acceptability in April and May 2020

Component of food security	Facebook Food banks with Facebook (*n*=11)	Instagram Food banks with Instagram (*n*=9)	Twitter Food Banks with Twitter (*n*=10)	Any Social Media Food banks with any social media (*n*=11)
Availability	91% (10)	67% (6)	50% (5)	91% (10)
Accessibility	73% (8)	33% (3)	30% (3)	73% (8)
Acceptability	18% (2)	0% (0)	0% (0)	18% (2)

Table 5. Proportion of Seattle Food Bank Website Posts that Communicated Themes Related to Food Availability, Accessibility, and Acceptability in April and May, 2020

Component of Food Security	% and (*n*) of Posts (*N*=100)	Examples
Availability	32% (32)	"We have increased our client numbers…however with the supply chains being unstable, we are in need of donated food items to provide to our clients." (Food Bank 6, April)
		"One of the unforeseen consequences of the coronavirus has been a reduction in donations of fresh groceries and non-perishable food to our food banks." (Food Bank 7, May)
Accessibility	48% (48)	"We are temporarily expanding our home delivery program. Food will be dropped off at your front door." (Food Bank 2, April)
		"We are now distributing boxes and bags of food through our truck docking station right near our front door. This procedure enables us to get the food they need and strengthens social distancing to make certain everyone is safe!" (Food Bank 20, May)
Acceptability	17% (17)	"We cannot guarantee certain types of food each week. We will do our best to accommodate allergies noted in your application." (Food Bank 18, April)
		"At check-in we will hand you a sheet to fill out your specific food preferences. Note any dietary restrictions and allergies that you have." (Food Bank 22, May)

(e.g., home meal delivery, giving out free face masks to shoppers), as opposed to 'economic accessibility' (e.g., transportation vouchers) (0%) or general accessibility (2%).

'Food availability' was the next most common theme and was present in 32% of website posts in April and May. Posts that discussed COVID-19–related impacts to food sources and barriers to maintaining their supply of food were most prevalent among posts discussing availability. Of the 32 posts related to food availability, 53% discussed COVID-19 impacts to 'food sources,' and 56% discussed 'barriers.'

'Food acceptability' was the least common theme found among website posts. Less than a quarter of website posts discussed food acceptability (17%). Forty-seven percent of posts on acceptability discussed nutritional acceptability as opposed to medical (24%) and cultural (6%) acceptability. This included communication on the availability of certain food items, disclaimers to clients about lack of choice, and efforts to accommodate clients' food preferences. In Table 5 we provide some examples to illustrate food banks' communication on these themes.

Social Media Posts

In our sample, Facebook posts composed the majority of all social media posts, followed by Twitter and then Instagram. 'Food availability' was the most common theme across all social media platforms and was discussed in 21% of social media posts. Accessibility was the next most prevalent theme, with 11% of social media posts.

Table 6. Proportion of Seattle Food Bank Social Media Posts that Communicated Themes Related to Food Availability, Accessibility, and Acceptability in April and May, 2020, by Social Media Channel

	Facebook Posts (*n*=250)	Instagram Posts (*n*=95)	Twitter Posts (*n*=149)	Overall Posts (*n*=494)
Availability	22% (54)	23% (22)	20%0 (30)	21% (106)
Accessibility	11% (27)	13% (12)	9% (13)	11% (52)
Acceptability	1% (3)	0% (0)	0% (0)	1% (3)

Table 7. Examples from Social Media Posts

Component of food security	Example
Availability	"We have never seen food move this fast through the food bank. Learn more about what we need right now to keep out community fed through COVID." (Food Bank 18, April)
	"A lot of canned and ready-to-eat food has been harder to find through our normal bulk ordering sources. We're asking for in-kind food donations to add variety to our Emergency 'No-Cook' Bags." (Food Bank 7, April)
Accessibility	"We have suspended our registration process and are simply giving groceries (including diapers and formula) to our neighbors." (Food Bank 11, April)
	"We are sending a letter in NINE languages to about 100 of our seniors today…letting them know we could deliver food to them if needed." (Food Bank 7, April)
Acceptability	"This helps us increase the number of individuals and families receiving home delivery, as well as provide culturally appropriate food to meet the needs of our diverse community." (Food Bank 2, May)

The theme of acceptability was largely absent among overall social media posts, being mentioned in just 3 of 250 (~1%) Facebook posts in April and May. In Tables 6 and 7, we provide proportions and some examples to illustrate Seattle food banks' communication on these themes.

Discussion

Our analysis of food bank websites and social media posts during COVID-19 serves both as a gauge for the extent to which food banks are communicating COVID-19 information to the community, and their experiences addressing the three core components of food security during the COVID-19 pandemic. Food banks in our sample emphasized mainly availability and accessibility of food during COVID-19, while acceptability was less prevalent in website and social media posts.

Physical and economic access to available, appropriate food is uniquely threatened by COVID-19. The loss of regular food avenues like group meals for older adults and school lunches for youth, coupled with staggering unemployment rates in the U.S., pose challenges for already vulnerable populations to maintain their food supply (Kochhar, 2020; Siddiqi et al., 2020). Because food banks already supply food at little to no cost to community members, food affordability was not as relevant to our study as physical access to the food bank. Our study indicates that Seattle food banks are taking a variety of steps to ensure that their clients have safe access to emergency food by limiting COVID-19 exposure. Examples of these efforts include increasing home deliveries, changing procedures for receiving food, and switching to prepackaged to-go food boxes. One food bank (Food Bank 7) even sent letters to regular food-bank visitors that they had not seen recently, translated to their native language, encouraging them to sign up for home delivery.

Website and social media posts also indicated that food banks' availability of food was affected by COVID-19. Some communicated about the speed at which food moved through the food bank due to an increase in visitors, which together with shocks in supply chains was making it difficult to acquire certain food items. Many food banks solicited donations of specific items or cash or thanked new partnerships like local businesses or restaurants for donating. Posts also communicated that food banks experienced barriers to receiving supplies through their regular avenues, such as grocery stores or individuals' donations of fresh produce.

In our sample, food acceptability was less discussed in the online communications of food banks. Over April and May, only two food banks discussed food acceptability on social media. Acceptability was also the least prevalent theme in both social media and website posts in April and May. Where the theme was present, some food banks stated that they may need to sacrifice food acceptability in order to implement safer policies or due to supply issues. One food bank communicated that they would provide fresh produce and

proteins as availability allowed (Food Bank 7). The switch from a grocery store model to prepackaged food boxes by many food banks limits person-to-person exposure but reduces the clients' autonomy to choose their food (Sheil, 2020).

We cannot conclude how food banks' communication to clients reflects their actual operations. Nevertheless, we propose that emphasizing acceptability in communications to clients is essential to drawing more clients to the food bank. As some food banks in our sample communicated, COVID-19 has reduced their capacity to provide as diverse a range of food as they did before the pandemic. Without information telling current and prospective clients differently, people with allergies or other specific diets may be averse to visiting a food bank, with potential cascading limitations in the types of clients served.

Further, our findings may help food banks understand the broader themes they are communicating to clients during emergencies and inform more intentional communications campaigns. Individual food banks may use this framework to evaluate their own communications during COVID-19. We recommend that food assistance organizations incorporate communication as part of their emergency response and business continuity plans based on the three dimensions of food security.

More research is needed on the broad implications of emergency food acceptability, such as post-disaster health outcomes, likeliness to visit a food bank, and mental health. Prior research and news media anecdotes have demonstrated that food acceptability has a direct bearing on people's ability to utilize emergency food resources (Colón-Ramos et al., 2019; Karoub, 2014). In the context of COVID-19, food acceptability issues have already made national news. For example, on social media, students at New York University and other schools shared photos of unappetizing meals and meals with foods that did not meet their dietary requirements (e.g., a meal of primarily bread for a student with a gluten allergy) that they were provided in their dorm rooms while isolating (Rosa, 2020). Communities may be more likely to access emergency food services if the food is culturally, nutritionally, and medically appropriate. To ensure that emergency food can be equitably distributed and enjoyed by diverse populations, acceptability must become a priority in emergency food planning.

Study Limitations

Our study was limited by a constrained geographic sampling frame and small sample size. By capturing website posts on two distinct days in April and May, we may have missed communications that food banks had released in the interim and removed by our next data capture. We purposively coupled our assessment of more static web communications with more dynamic and regularly updated social media posts to capture ongoing and real-time communication. Notably, we only included the social media pages for stand-alone food banks, which excluded data from food banks that are part of larger organizations. These organizations may have systematically different approaches to communication, for example, by having dedicated communication staff in-house.

Our study revolved around the commonly accepted three components of food security: availability, accessibility, and acceptability. While most conceptualizations of food security include some form of these three components, definitions of food security vary. For example, in a report from the Seattle city council, the authors included availability, accessibility, affordability, accommodation, and acceptability as their five components for healthy food access (Bolt et al., 2019).

Finally, social media and website posts do not give the full extent of how food banks are attempting to provide food. We only analyzed the information food banks communicated to clients on their online platforms, not the multitude of actions they completed behind the scenes to feed their communities throughout COVID-19. To fully understand the challenge of maintaining the three core components of food security during an emergency, food banks and clients should be surveyed or interviewed to capture their firsthand experiences. We also do not know if clients received this information or if it had any bearing on their behavior or resultant food security. Future research is needed on the reach and efficacy of disaster communication from emergency food organizations.

Conclusions

Our study sought to assess if and how Seattle food banks utilized web and social media platforms to communicate information on food availability, accessibility, and acceptability during the initial response to COVID-19. Our findings show that food banks in Seattle used these platforms to communicate the most about food availability and accessibility, while food acceptability was far less commonly addressed. It is imperative for food acceptability to be included in emergency food planning and communication in the future to ensure that nutritional, medical, and cultural preferences are met. COVID-19 is an ongoing and evolving emergency that requires an iterative approach to learning and action. Food banks may wish to periodically assess the main themes of their online communications, as well as the reach of their different platforms during the COVID-19 pandemic, as strategies to facilitate community food security. Our study may help food banks understand the types of information they are communicating to clients during emergencies and inform improvements to holistic, client-centered emergency communications planning and implementation that addresses the three dimensions of food security.

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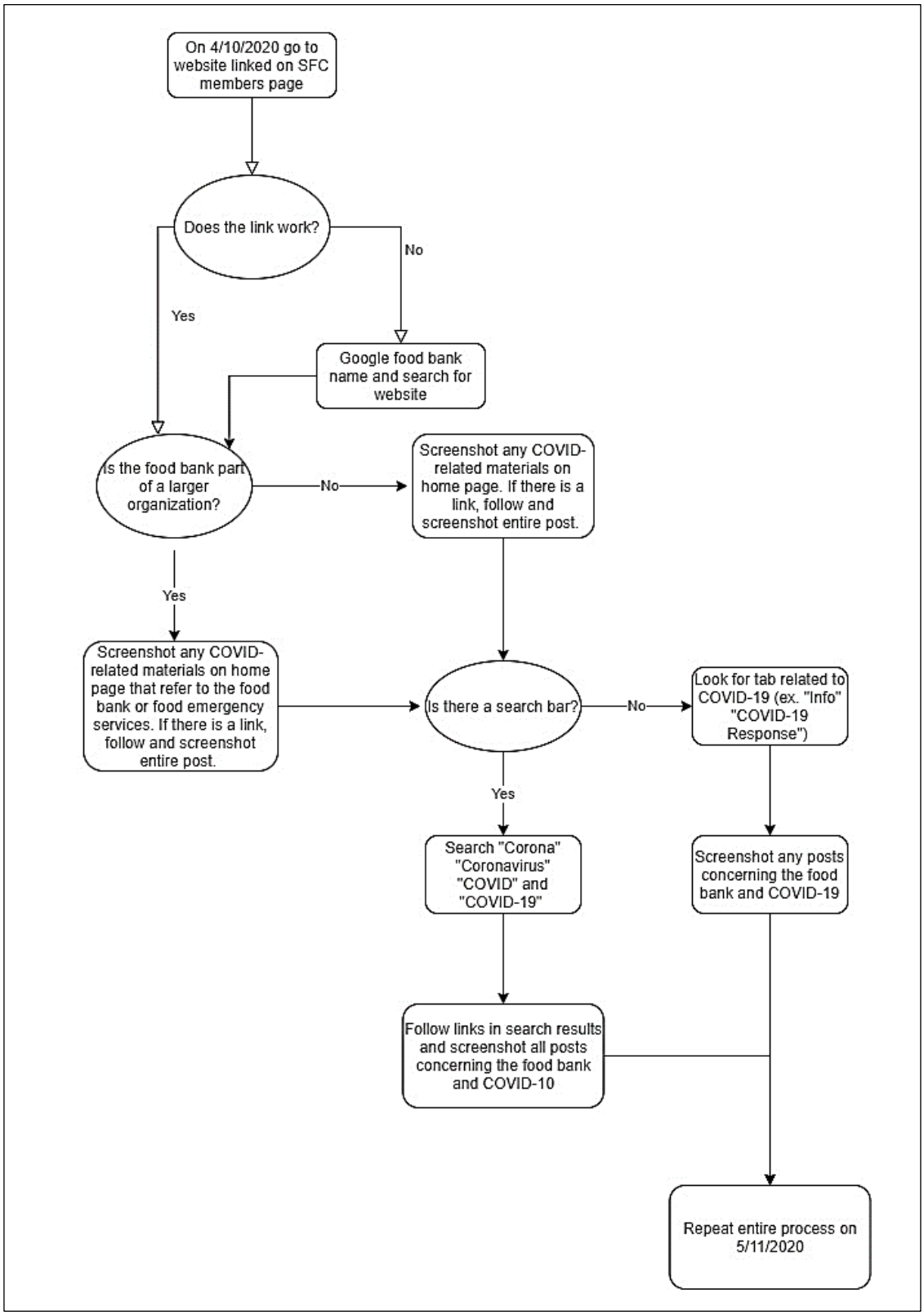
Appendix A. Definitions of Codes

Code	Definition	Example
Basic Info		
Changes to Hours	COVID-19 related changes to hours of distribution.	
Change of Location	COVID-19 related changes to location of distribution.	Home deliveries, new distribution sites, operating out of parking lot
Guest Interaction with Food Bank (NPI)	Procedures for waiting in line, entering facilities or retrieving food.	Standing >6 feet apart in line, limiting quantity of people entering food bank, no contact (food left on doorstep)
Food Presentation	Changes to how food is presented to clients.	Prepackaged boxes/bags
Food Availability	Discusses the current and/or expected supply of food for redistributing to clients in the context of COVID-19.	
AV: Food Sources	Discusses COVID-19 impacts to where the food bank obtains the food that they redistribute. Ex. Donations from businesses, individual donations, governmental surplus.	Reduction in donations from individuals, businesses, cancelled food drives
AV: Partnerships	Discusses COVID-19 impacts to the food bank and other partner nonprofit organizations, private businesses, governmental bodies in relation to food availability.	Increased emergency food aid from the government, reduction in grocery store supply, support from other nonprofits and community orgs like Northwest Harvest
AV: Quantity	Discusses COVID-19 impacts to the amount of food available for the food bank and clients.	Specific figure of amount distributed during COVID-19, reduction or increase in supply
AV: Barriers	Discusses COVID-19 related challenges to maintaining their supply of food.	Reduction in donations, increased operation costs associated with COVID affecting food supply
AV: Solutions	Discusses solutions for maintaining their supply of food in the context of COVID-19.	Limitations on weekly visits, online donations
Food Accessibility	Discusses issues of clients' physical and economic access to the food that the organization supplies in the context of COVID-19.	
ACC: Economic Solutions	Discusses or presents immediate COVID-19 related challenges, opportunities or resources for clients to overcome economic barriers to accessing their services.	Transportation vouchers, sliding scale meals
ACC: Physical Solutions	Discusses or presents challenges, opportunities or resources for clients to overcome physical barriers to accessing the food the organization provides in the context of COVID-19.	Ex. Mask provision, food delivery, organization's effort to meet clients where they are
Food Acceptability	Describes organization's experience or efforts providing nutritionally, culturally and medically acceptable food to their clients in the context of COVID-19.	
ACCP: Cultural	Describes organization's efforts or ability to provide culturally appropriate food to their clients in the context of COVID-19.	Ex. Working with immigrant populations, religious requirements, providing ingredients specific to particular culture
ACCP: Nutrition	Describes organization's efforts or ability to provide nutritious food to clients in the context of COVID-19.	Ex. Presence of fresh produce and protein, variation of food provided

ACCP: Medical	Describes organization's efforts or ability to provide food for people with certain medical or allergy requirements in the context of COVID-19.	Ex. Nut-free food, limited chewing ability, medically tailored food

Note: Updated 6/5/2020 "in the context of COVID-19" means either explicitly or implicitly mentions COVID-19. Ex. "during these hard times," "through this difficult period…" etc.

Appendix B. Protocol for Screenshotting Websites



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An examination of adaptations of direct marketing channels and practices by Maryland fruit and vegetable farmers during the COVID-19 pandemic

THE IMPACT OF COVID-19 ON FOOD SYSTEMS
COSPONSORED BY INFAS:

Inter-institutional Network for Food and Agricultural Sustainability

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Abstract

This study explores the impacts of the COVID-19 pandemic and the Maryland stay-at-home order on fruit and vegetable farmers in Maryland. Focusing on farms' direct-to-consumer marketing channels, we aim to characterize the diversity of farm responses and identify practices that facilitated adaptation. This research is grounded in the socio-ecological systems framework, which emphasizes

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the interconnection between social and ecological systems and characterizes the dual-driving forces that impact food producers and their livelihood. The study team conducted interviews with 20 Maryland farm owners/managers who grow and sell produce. The semistructured interviews included questions relating to production practices, sales and marketing, and resilience. The interviewer followed up with probes to understand the dimensions of response diversity and adaptive capacity. Interviews were transcribed verbatim, and responses were analyzed using the framework approach. In the context of a global pandemic, community supported agriculture (CSA), farmers markets, and pick-your-own channels provided a high degree of stability and financial security. No farmer reported relying solely on intermediated markets (e.g., restaurants, grocery stores, institutions). Distribution channels that incorporated an online marketplace offering prepacked pre-orders were a notable strength of highly adaptive Maryland produce farmers. Farmers reported that expanding established CSAs was an important method for reallocating produce originally intended to be sold to reduced/terminated marketing channels. Common challenges among farmers included increased administrative workload, concerns associated with raising food prices during a crisis, and environmental concerns about the use of additional packaging. We describe a range of adaptive behaviors that aided farmers in withstanding shocks.

Keywords
COVID-19, Local Food Systems, Resilience, Direct-to-Consumer (DTC) Marketing, Response Diversity, Adaptive Capacity, Stay-at-Home Order, Pandemic

Introduction

The COVID-19 pandemic that began in 2020 and subsequent government restrictions on movement significantly disrupted U.S. food supply chains, resulting in reduced food availability and access (Laborde et al., 2020). In Maryland, restrictions on movement were formalized on March 30, 2020, when presiding Governor Larry Hogan issued Executive Order No. 20-03-30-01, requiring all non-essential persons to stay home. Prior to the pandemic, consumer preference for local food was primarily motivated by perceived quality, superior taste and nutritional value, social and environmental impact, and desire to support the local economy (Brekken et al., 2017; Feldmann & Hamm, 2015; Martinez et al., 2010). Recent research suggests that public concern about transmission of the COVID-19 virus has increased consumer preference for grocery store pick-up and delivery options (Grashuis et al., 2020) and for food grown by local farmers (Schmidt et al., 2020; Severon, 2020).

The pandemic has heightened concerns about the capacity of food systems to ensure food security. The United Nations recognized food as a universal human right in 1948 and later introduced the term "food security" in 1974 (Chen et al., 2015). Facilitated by the increase in global trade and desire to stabilize food production, prices, and consumption (Bellows & Hamm, 2002), the following period was characterized by deepening of vertical integration of food production. In response to this change, the 1990s were marked by increased interest in countering this trend and improving food system resilience through re-localization and the community food security movement (Bellows & Hamm, 2002). Interest in local food systems continued to grow during the early 2000s, indicated by increasing sales through both direct-to-consumer (DTC) and intermediated marketing channels (Low et al., 2015; Martinez et al., 2010). However, in the last decade, national data suggest that the number of farms selling directly to their local communities has begun to decline (O'Hara & Benson, 2019). DTC channels are advantageous because they allow farmers to sell directly to the final consumer (e.g., farmers markets, community supported agriculture (CSA), pick-your-own), while intermediated channels facilitate direct sales to local institutions (e.g., restaurants and school systems). Most small local farms sell only DTC, but an increasing number combine DTC and intermediated sales channels (Low et al., 2015). For this reason, we can consider direct marketing channels to be any combination of DTC and/or intermediated channels reported by local farmers in Maryland during the COVID-19 pandemic.

Direct market sales are most prominent among small to medium-sized farms producing fruits and

vegetables near urban centers in Northeast states (Low & Vogel, 2011) and are influenced by the population density of the surrounding areas (O'Hara & Lin, 2020). As with other states on the Eastern Seaboard, Maryland farms are primarily small to medium-sized; the average U.S. farm is 443 acres while the average Maryland farm is 161 acres (U.S. Department of Agriculture National Agricultural Statistics Service [USDA NASS], 2019a). According to the 2017 Census of Agriculture, an estimated 11% of Maryland farmers engage in direct market sales (USDA NASS, 2019b). However, this figure could likely be larger because smaller peri-urban and urban farms are disproportionately not captured by the Census of Agriculture (Rogus & Dimitri, 2015; Young et al., 2017; Young et al., 2018). Research on direct marketing is important because, compared to traditional marketing channels, it is associated with higher business survival rates among small and beginning farmers (Low et al., 2015). This may be in part because direct market sales return a larger share of the food dollar back to the farmer than traditional marketing channels do (Myers, 2017).

Focusing on the farms' direct market sales, we aim to identify and characterize the diversity of farm responses to the COVID-19 pandemic and to identify practices that farmers implemented to improve their resilience. First applied to ecological systems, resilience research has been further developed by social science researchers to address social systems (Adger, 2000). Manyena (2006) skillfully documented the unwieldy number of definitions for resilience and identified a progression from outcome-oriented language to a more process-oriented language. Opting for the latter, we define resilience as the "capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Walker et al., 2004, para. 7). Applied to our study population, resilience is the ability of an individual farm operation to continue food production and distribution to customers in light of the ongoing COVID-19 pandemic.

Research on resilience is frequently grounded in the socio-ecological systems (SES) framework, which emphasizes the interconnected nature of social and ecological subsystems (Adger, 2000; Folke et al., 2010; Gallopín, 2006; Hodbod & Eakin, 2015). Adger (2000) argues that an SES framework is "particularly relevant for social groups or communities that are dependent on ecological and environmental resources for their livelihoods" (p. 347). This point is salient when thinking about the classification of farmers as "essential workers," as the timing of the Maryland stay-at-home order coincided with the start of the 2020 harvest and persisted throughout the growing season. While a great deal of resilience literature attends to developing metrics to measure the *amount* of system resilience (Cutter, 2016; Food and Agriculture Organization of the United Nations, 2016), we aim first to characterize actions and business decisions made by farm owners during the COVID-19 pandemic. Two constructs from resilience literature—response diversity and adaptive capacity—are relevant to our study and are used to examine the features of highly resilient farm operations.

Response diversity explains the fact that individuals or organizations do not respond in the same way to changing circumstances (Kaseva et al., 2019; Leslie & McCabe, 2013). In the context of the COVID-19 pandemic, diversity could take the form of one farm choosing to shut down all but one existing direct marketing channel, while a neighboring farm adds a new channel. Variety in response is crucial because while some response diversity is advantageous, some degree of redundancy also contributes to system resiliency (Clancy & Ruhf, 2010; Miller et al., 2013). Adaptive capacity refers to the actual assets, social safety nets, and personal and institutional knowledge that facilitate response action and serve as a buffer against abrupt changes (FAO, 2016; Kaseva et al., 2019). In the context of COVID-19, examples could be a tech-savvy young farmer starting an online store and an older farmer starting a farm stand. Both practices may be effective, but they are facilitated by differing assets, skills, and knowledge. Our research contributes to the existing literature on food system systems resilience by taking a step back, starting at the individual farm level, and characterizing the diversity in farm responses and

adaptations that were specifically motivated by the pandemic.

Local farms' direct marketing practices warrant greater study because small to medium-sized farm operations have smaller profit margins than large farms, which makes them more vulnerable to the impacts of climate change and other events (Department for Environment, Food and Rural Affairs, 2013; Miller et al., 2013). Within food system resiliency research, food production and climate change remain the two primary areas of focus (Miller et al., 2013). However, developing more nutrient-dense crops and resilient methods of production are inconsequential if the primary system by which food is delivered to the consumer fails to function under future shocks. The purpose of our research is to improve the understanding of how small and medium-sized fruit and vegetable farms in Maryland responded during the initial months of the COVID-19 pandemic. Two research questions guided this study: (1) What changes to existing direct market sales channels occurred during the pandemic? (response diversity); (2) What specific practices did farmers use to modify existing or newly added direct market channels? (adaptive capacity). Given the research objectives, and the complexities around responses, the study used qualitative methods.

Applied Research Methods

Recruitment

We used purposive sampling to select farm operations of varying county locations and production acreage. We used the USDA Census of Agriculture farm definition (>$1,000 in sales) as the basis for eligibility criteria. Eligible farms were in Maryland and had produced fruits and/or vegetables during the previous year (2019). There was no minimum or maximum farm size (acreage) required for eligibility. Furthermore, farms were not excluded if they sold produce in multiple states (e.g., Virginia, D.C.) or had supplemental non-produce income (e.g., meat or poultry, dairy, honey). Farms were represented by either their owners or produce managers.

One hundred sixty-two eligible farm businesses were identified through existing partner networks of the authors and internet searches. Networking with Farm Alliance of Baltimore members supplemented online recruitment efforts. Study recruitment occurred during June–August of 2020. We aimed to recruit a variety of farms, from as many as possible of Maryland's 24 counties. All study recruitment occurred via email using a standard form letter sent from the primary researcher. Eligible farms that did not respond within 1–3 weeks were contacted a second time by email. Recruitment efforts were halted when two outreach efforts per farm were met with no response.

In total, 111 eligible farms were invited to participate. Of those, 6% (n=7) declined to participate either because they did not have time (n=4) or had stopped selling produce in recent years and failed to update their websites (n=3). The majority (n=84, 76%) did not respond to either of the two recruitment emails. Twenty-three farmers (19%) agreed to participate, and an interview time was scheduled. Of those, three failed to attend the interview, resulting in a final participation rate of 18% (N=20). Four farmers were members of the Farm Alliance of Baltimore, a collaborative of urban farms in Baltimore City, Maryland. The eligibility criteria and recruitment process produced a group of participating farms that each had one or more direct marketing channels. Farmers were compensated US$50 for participating in the interview. Each participating farm had one representative participate in the study.

Data Collection

Interviews with 20 Maryland farmers were conducted between June 11 and August 10, 2020, by a single researcher (G.B.). The interview guide included 31 questions and additional probes. To prevent the risk of COVID-19 transmission between participating farmers and the researcher, all data collection occurred via the Zoom videoconferencing platform or by phone (per farmer request). Study protocols were reviewed by the Johns Hopkins University Institutional Review Board. All participating farmers provided informed oral consent prior to the interview and agreed to be recorded.

The researcher administered a demographic questionnaire consisting of closed-ended questions.

Responses were collected and managed using REDCap electronic data capture tools hosted at Johns Hopkins University Bloomberg School of Public Health (Harris et al., 2009). The questionnaire collected information on farmer demographics and 2019 farm business characteristics. If specific figures were not determined during questionnaire administration, the study team followed up by email to confirm or complete responses.

Eighteen interviews (90%) were recorded and transcribed verbatim using NVivo (Version 12) qualitative data management software. Two interviews were not recorded due to technical failure. The researcher (G.B.) kept notes for each interview and completed a voice memo recounting the conversation, which was then transcribed. The average length of an interview was 61 minutes (range 39–93 minutes). Recruitment of study participants and data collection concluded after the primary researcher conducted 20 interviews. The research team reviewed the responses by theme and collectively determined that saturation had been met.

Analysis

Quantitative data from the surveys are reported using descriptive statistics; analysis was conducted using Excel. Qualitative data analysis was guided by the framework approach, a five-step qualitative data analysis plan appropriate when research questions are identified *a priori* (Pope et al., 2000). The process is inherently iterative, resulting in researchers moving forward and backward across the five steps. Step 1, data familiarization, was completed by one researcher (G.B.), and accomplished by reviewing written notes, completing a reflective memo, and editing and correcting the interview transcripts. Step 2, identifying a thematic framework, was initially informed by predetermined themes as outlined in the in-depth interview guide: (1) production practices, (2) sales and marketing, (3) adaptation and resiliency. All of step two was accomplished by the two primary researchers (G.B., S.L.). Emerging themes were added to the thematic framework, including (4) response diversity and (5) adaptive capacity.

During the remaining three steps, the two primary researchers consulted regularly with the larger research team to make determinations as to how best to categorize and display the data. Steps 3 and 4—indexing and charting of quotes—involved assigning each quote to one or more of the five themes while keeping the context of the quote and the individual farm intact. Data were coded using Nvivo 12. During the fifth and final step, mapping and interpretation, both researchers focused on identifying the range of individual farm actions and experiences as they relate to response diversity and adaptive capacity. Illustrative quotes were discussed and highlighted to substantiate the findings. Finally, we report on and discuss the breadth of the findings, highlighting displays of resiliency by the farm and farmer.

Results

Farmer and Farm Characteristics

Eleven farmers were female (55%), and the majority owned the farm/business (70%) (Table 1). Farmers ranged in age from 25 to 60 years old (mean=41.5 years). Reflecting the wide age range, total years of farming experience ranged from 1 to 40 years (mean=14.4 years). Most total years of farming experience occurred at their current farm; employment duration ranged from 1 to 35 years (mean=10.6 years).

One-third of farms (n=7, 35%) are USDA-certified Organic, although a few more reported following organic practices. The average farm size was 17.0 acres (SD=31.1) and the average 2019 harvest was nearly 20,000 pounds of produce in 2019 (SD=27,573). The average revenue reported in 2019 was $161,857 (SD=US$289,878). At four farms, the participating farmer was the sole employee. The remaining farms (n=16, 80%) relied on some combination of additional full-time employees, part-time employees, seasonal workers, and/or volunteers.

Farms were located in 11 of 24 Maryland counties (Figure 1). The number of farms was greatest in Baltimore City county (n=4, 20%), followed by Baltimore County (n=3, 15%). Two farms each from Frederick, Howard, Prince George's, and St. Mary's counties were also represented.

The qualitative data were collected to answer our two main research questions, regarding the

Table 1. Characteristics of Farmers and Farms (*N*=20)

	Mean (SD)	Median (range)	*n*	%
Farmers				
Sex				
Male	--	--	9	45
Female	--	--	11	55
Farm/Business Owner				
Yes	--	--	14	70
No	--	--	4	20
Other: Own the business, not the land	--	--	2	10
Age (years)	41.5 (13.1)	38.5 (25.0, 60.0)	20	--
Farming experience (years)	14.4 (10.6)	11.0 (1.0, 40.0)	20	--
Employment at current farm (years)	10.3 (9.5)	8.0 (1.0, 35.0)	20	--
Farm Operation (as of 2019)				
Certified organic	--	--	7	35
Farm size (acres)	17.0 (31.1)	3.0 (0.2, 120.0)	19	--
Produce harvested (lbs.)	19,353 (27,573)	1,200 (400, 70,000)	9	--
Farm/business revenue (US$)	$161,857 ($289,878)	$128,000 ($1,200, $1,200,000)	16	--
Employees (#)				
Full-time	3.0 (3.9)	2.0 (0.0, 17.0)	20	--
Part-time	5.6 (12.6)	1.0 (0.0, 48.0)	20	--
Seasonal workers	3.4 (7.2)	0.0 (0.0, 30.0)	20	--
Volunteers	47.4 (141.6)	1.0 (0.0, 600.0)	20	--

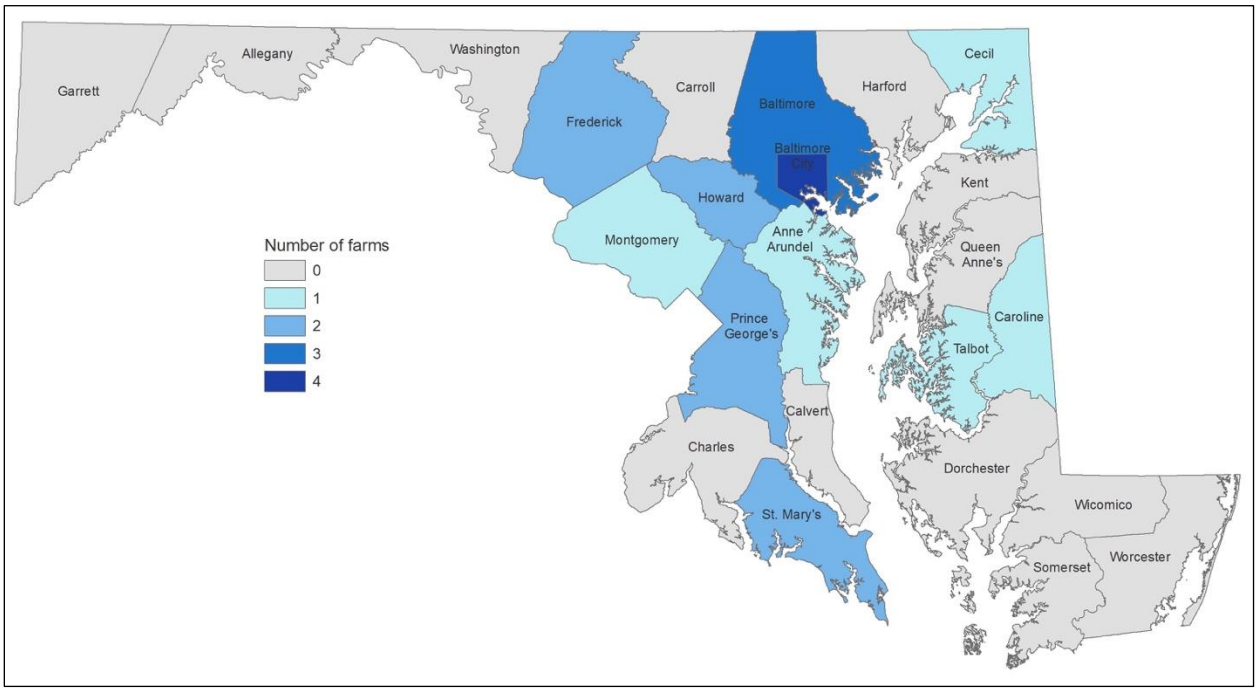
changes made to direct market sales channels and the marketing practices used to modify existing or newly added channels. Questions were designed around three aforementioned themes: (1) production practices, (2) sales and marketing, and (3) adaptation and resiliency. Following the framework approach's five-step analysis plan, the team reviewed and organized data to understand how farmers assessed their operations in the context of the pandemic and the Maryland stay-at-home order, and made decisions about which marketing channels they would stop or continue (with or without modification) and which new channels they would start. Data was organized to show the range of marketing practices developed or adapted to address shifting consumer preferences and the changes in direct marketing channels. Results are presented with demonstrative quotations and the corresponding farmers' assigned identification number (ID).

Direct Marketing Channels

Farmers reported using four primary direct marketing channels in 2019 prior to the pandemic: community supported agriculture share programs (CSAs), farmers markets, pick-your-own, and sales to restaurants. (In CSAs, the customer purchases in advance a share of the farmer's expected yield for the season or an otherwise specified duration of time, then receives the produce weekly when harvested (Low & Vogel, 2011)). Farmers reported selling produce through one to four established channels. Ranked in order from most to least common: 35% (*n*=7) of farms reported two marketing channels, 30% (*n*=6) reported three, 30% (*n*=6) reported only one, and 5% (*n*=1) reported four.

Trends as to where farmers sold produce emerged through the number of channels reported.

Figure 1. Participating Farm Locations by County in Maryland



For example, CSAs were the most common among farmers who sold through one marketing channel. For farmers with two marketing channels, the combination of farmers market and restaurants sales occurred most frequently. For farmers with three marketing channels, the majority reported engaging in a combination of CSAs, farmers markets, and restaurants. Notably, no farmer reported relying solely on intermediated markets (e.g., restaurants, grocery stores, institutions).

Nearly all participating farm operations (95%, *n*=19) remained in business and were still distributing food to customers at the time of the interview. The exception was a young farmer who held a second job in the restaurant industry during the winter months and elected midway through the harvest season to exit farming to pursue landscaping, primarily for economic considerations.

The remaining farmers reported not making any substantive changes to the fruit and/or vegetables produced because of the pandemic. Several stated that this was because of having finalized their crop plan during the previous winter, November 2019–January 2020. Rather, farmers had much to say about changes made to where and how they distributed their harvested produce on account of COVID-19 and the stay-at-home order. As Farmer 16 put it aptly: "The plants don't care. You know, they grow whether it's COVID-19 or not."

1. Response Diversity

In response to COVID-19, nearly all farmers reported making some degree of modifications to the marketing channels *where* they sold produce. However, farmers remarked that the timing of the pandemic made adapting their existing marketing channels easier than if the pandemic had come at any other time of the year. More specifically, when the pandemic first began affecting daily life in Maryland in March 2020, farmers were primarily tending their crops in the fields. Only a small minority of farmers were actively harvesting and selling produce, while the majority were focused solely on growing produce:

> …the timing actually worked out really well in our favor. You know, if it [the pandemic] had hit a month later, or something like that, we would have had to make drastic changes. [ID-12]

> If it [the pandemic] had happened in the mid dle of the summer, I think for many people [farmers] it would have been like a harder, you know, a harder ship to turn. Because for most farmers, regardless of what you grow, it [the pandemic] was kind of in the beginning or in a bit of a lull. So it's like, you know, you could change things. [ID-01]

Precisely because COVID-19 occurred at the start of the season, farmers could clearly demarcate between which market(s) they *had planned* to use and then which market(s) they *did* use. There were clear trends in the types of channels farmers reported stopping (or not starting), continuing—with and without modifications, and starting to use during and after the stay-at-home order. In general, farmers reported continuing or starting DTC channel(s), particularly CSAs and farmers markets. Conversely, the majority of farmers reported stopping existing intermediated channels (e.g., restaurants) (Figure 2).

Figure 2. Farmer Responses to the COVID-19 Pandemic by Direct Marketing Channel

	Customer Channels	Stopped (or did not start)	Continued (with or without modifications)	Started
Direct to Consumer (DTC)	**CSA**	**1 farm was unable to start** • COVID-related production delays	**7 farms modified distribution** • Changes to pick-up time, location, and/or method (6) • Intended to start charging but continued with donations (1) **4 farms modified production** • Extended season (1) • Stopped work exchange (1) • Crop increase/decrease (2) **2 farms reported no changes**	**2 farms started** • Response to restaurant closures (1) • *Diversification (1)* **1 farm resumed** • Added a 4-week offering
	Farmers Market	**3 farms stopped selling** • Disliked COVID-19 market policies (1) • Half season; quit farming (1) • Increased nonproduce commodities (1)	**All farms (14) modified distribution** • Changes to farm stand and sales transactions **2 farms experienced temporary disruptions** • Location changes, delays in opening	**1 farm started** • Response to restaurant closures
	Pick-Your-Own	**3 farms stopped** • Temporary; later reopened (2) • Permanent; friends and family only (1)	**2 farms continued, with no major changes** • County permitted pick-your-own (1) • Prioritized community member access (1)	**0 farms started**
Intermediated	**Sales to Restaurants**	**6 farms stopped selling to *all* existing venues** • Specialty items (1) • Restaurants fully shut down (5) **1 farm was unable to start** • Lacked buyers	**2 farms continued selling to select existing venues**	**1 farm started selling to new venues** • Obtained through word of mouth

Notes: *Italics* denote an action that was planned prior to the COVID-19 pandemic.
Number in parenthesis indicates number of farmers reporting this response.

The following section provides quotes from select farmers which demonstrate their motivations for stopping, continuing, or beginning to sell produce within a given direct marketing channel. Additionally, relative advantages and challenges of each channel are discussed.

1.1 Community Supported Agriculture (CSA)

CSAs were a reliable distribution channel, despite the pandemic, due to heightened customer demand. Thirteen farmers continued their CSA offerings. Three started a CSA offering, and one farm was unable to start a CSA due to pandemic conditions. Regardless of farm size, location, and business age, all farmers who offered a CSA sold out, either for the first time ever or for the first time in recent years:

> I was afraid that we wouldn't have anybody participate. … But when people couldn't find food, they started to panic in a way that I've never witnessed. And we filled that CSA. I've now started to turn people away. [ID-02]

Unusually high customer demand accounts for why one farmer, who had discontinued her CSA in 2019, felt compelled to revive this distribution channel and offer an abbreviated four–week long CSA:

> You know, in January 2020, my plan was I'm just bringing to [farmers] market. I'm not going to be doing the CSA. … [But then] I just had people like emailing me about it. Or calling me, or texting me, like every day. [ID-17]

Another farmer had intended to start charging for CSA shares prior to the pandemic but decided to continue providing CSA shares to customers at low or no cost. The decision was informed by conversations with numerous concerned customers, reflecting the tension in communities between food security and financial security brought about by the pandemic:

> They're like, "What if I give you a hundred dollars? Would I [be] guaranteed food?" I'm like, "You don't have to do that. Just hold on to your money. You save every dime that you got." [ID-06]

CSAs were well-suited for the disruption caused by a pandemic because customers can often self-serve, and farmers are in control of the pick-up location and time. Overall, CSAs remained a highly stable distribution channel during the pandemic because of the heightened customer demand.

1.2 Farmers Market

Farmers markets proved to be another highly stable distribution channel. Fourteen farmers continued with this marketing channel, while two stopped selling to farmers markets and one began selling at markets specifically because of the pandemic. Four of the fourteen farms participated in an aggregated farmers market stand managed by the Farm Alliance of Baltimore. For all farmers, a reported disadvantage of this marketing channel was the high degree of uncertainty during the initial few weeks of the stay-at-home order about when farmers markets would reopen and what new policies vendors would have to implement. This channel required arguably the greatest degree of modifications. All farmers reported changing their table setup, packaging, and/or payment mechanisms:

> So we changed the whole market layout. The way that we do the stand. We changed our packaging to be much more plastic intensive. We changed . . . initially we said no cash back. So it was either exact change or [credit] card. So we've done a lot more cards processing. [ID-17]

Setting aside the high degree of uncertainty at the start of the pandemic, farmers markets became a reliable distribution stream, offering vendors a broad customer base and increased sales:

> People became re-acquainted with farmers markets. And the cool part for us is it was pretty packed. And so it was like, here you go. Get out. Here you go. Get out. [ID-02]

Most farmers who sold at farmers markets prior to the pandemic continued, with reasonable

adaptions to booth setup and customer transactions to facilitate social distancing. While farmers had less autonomy in this distribution channel than with a CSA, markets remained a viable way to market their products during the pandemic to many households.

1.3 Pick-Your-Own

Three of the five farmers (60%) offering a pick-your-own operation prior to the pandemic temporarily or permanently stopped this marketing channel. For those who had produce ready to harvest when the stay-at-home order was in place, public safety measures were prioritized over harvesting the produce. Once the order lifted and more was known about how COVID-19 was transmitted, farms opened with safety precautions:

> And you're faced with this like, do we let the strawberries rot? Or do we invite people to U-pick them? And so then I had to go through this really long, sort of tortured process of getting permission [from employer] to let my customers U-pick the berries. … They [the employer] were anxious about having too many people in the field at once. Having people without masks. … I came up with a sign up system. And some rules. [ID-11]

Two farms offering pick-your-own continued without limiting or delaying public access. One farmer located in an urban center prioritized access to nature and food security for members of their local community:

> … We have a good many neighbors who just know about the farm and come pick food themselves … when I'm there, when I'm not there, they can just come by. [ID-15]

The other farmer who managed a large pick-your-own operation did not have to make major modifications because the crop was not ready to be harvested until after the stay-at-home order had ended. They were met with drastically increased customer demand, characterized by many first-time customers:

> So on a typical weekday … we would see anywhere from 200-400 cars come through the property. … Now, it's been more like 500-700 cars on a daily basis. … The weekends have been, you know, pretty much tripled for us. [ID-12]

Pick-your-own marketing channels stalled during the initial months of the pandemic, as farmers were uncertain about how to implement appropriate safety precautions. However, as more was learned about the transmission of COVID-19 and outdoor activities were encouraged over indoor activities, farmers who did have established pick-your-own channels resumed partial or full capacity. No farmers who did not offer pick-your-own prior to the pandemic launched this marketing channel during or after the lifting of the stay-at-home order.

1.4 Restaurants

The greatest disruption in direct marketing channels occurred in the restaurant sector. Six farmers who sold to restaurants in 2019 lost all restaurant customers due to the pandemic. Most of these farms had another marketing channel—most commonly a CSA or farmers market—and reallocated product intended for restaurants to these channels. Only one farmer of the six reported establishing new restaurant customers. Another farmer provided a potential explanation for why restaurants had not resumed purchasing product from local farms:

> For the most part, I was selling stuff to them [restaurants] that would be featured on, say, a menu special. And now a lot of restaurants, even though they're still doing business, they've really pared down … focusing more on just kind of basic menu essentials and getting people back in the door. [ID-07]

Two farmers reported continuing to sell to some but not all existing restaurant customers. One went from approximately 40 restaurant customers to four, and the other went from seven restaurant customers to one:

> Only one [restaurant business] weathered the storm pretty well, and that's because that owner and chef of the restaurant, basically laid off most of their workers, and just started running a grocery store out of his place, with our foods. … He was very adaptive because he's old. He's like me, he's adaptive. [ID-19]

This perspective on changes within the restaurant industry reflects a general trend among farmers; many keenly observed how other food production businesses were responding and likely made mental notes about what appeared to work, or perhaps not work.

1.5 Alternative Channels

Farmers also reported distributing food via three other channels: (1) donations, (2) sales to other farms, (3) sales to institutions and organizations. Prior to COVID-19, three farmers reported consistent food donations, either directly to individual community members or to food pantries. Another three farmers reported incorporating food donations into their weekly food distribution regimen in response to the pandemic. Farmers motivated by food security concerns in Maryland seemed to be more easily able to act on their intention to donate because of perceived increased need and the establishment of new and conveniently located donation sites supported by numerous organizations:

> I felt very strongly that I didn't want to put food in the compost pile this year. And so I made kind of a conscious effort to try to donate surplus. [ID-07]

Another produce distribution method reported by four farmers was direct sale of produce to another farm, which was then used for their CSA or restaurant sales. For three of the four farmers, this marketing channel was a normal practice and not related to the pandemic. One farmer began selling produce to another farm business that had experienced COVID-19 related production delays:

> … It's a nonprofit farm where they [are] supposed to have veterans come … so some things didn't get planted … so they're buying produce from us so they can support their own CSA. Hopefully to stay afloat long enough … [ID-04]

Three farmers reported produce sales to institutions and organizations. Of them, two began selling to nonprofit community organizations addressing food insecurity in Maryland. The third farmer, who had previously sold fruit to a school district in Maryland, was able to continue selling to schools and also to expand sales to organizations focused on food security:

> We found that all the organizations that were feeding kids were also looking for fruit. Because what happened is a lot of wholesale companies had dried up. … And so people were pointing them toward us. … And now, you know, I realize that there is an entire production of people that are just trying to feed kids. And so, you know, it's something that I think that we have to look at for the future. [ID-02]

Most farmers were able to sell product through established direct marketing channels, but the pandemic also incentivized expansion of donations and sale of produce to new types of customers.

2. Adaptive Capacity

In addition to modifications in direct marketing channels, farmers also reported numerous adaptive practices employed across channels. All farmers reported making at least one change in *how* they marketed and distributed their produce. We identified seven practices, which we have grouped by most commonly adopted (two practices) and least commonly adopted (five practices). Adaptations were made feasible by existing assets, social safety nets, and personal or institutional knowledge. Notably, farmers only discussed practices that were successful in helping their businesses address new challenges posed by the COVID-19 pandemic. In other words, no farmer reported any practice that was implemented but then abandoned because it was thought to be ineffective.

2.1 Most Commonly Adopted Practices

The two most commonly adopted practices reported were the implementation of prepacking products and a pre-order system. Notably, the two practices went hand in hand, as pre-orders drove the need for prepacked products. Prior to the pandemic, only two farms had established pre-order systems. In response to the pandemic, an additional six farms established pre-order systems. Farmers developed workflows to incorporate online stores, email, and phone or text messaging to manage customer orders. The emergence of these two practices among most farmers is significant, as most did not have any prior experience (e.g., online sales) or established resources (e.g., packaging materials) to draw upon in preparation. Table 2 presents a description of the practice, motivation(s), and advantages and disadvantages as reported by the farmers who used these practices.

The primary advantages of prepacking and pre-orders were decreased risk associated with revenue generation and food waste, and the ability to maintain social distancing between the farmer and customer:

> You're not going to a farmers market hoping it doesn't rain and then coming home with 20 bushels of mesclun mix. [With] preorder, I know it's all sold. So it's decreased risk. It's increased [pauses] it's increased gross revenue. It's decreased that element of risk [waste]. [ID-19]

> And they [customers] would essentially walk up at the table. The table would be further out, so there'd be distance from us. They'd give me their name, you know, we'd go pull out their order and set it on the table. [ID-20]

Conversely, the primary disadvantage of these two practices was the increased administrative time, costs, and workload:

> Having [to] just overnight, to become like an Amazon, and figure out logistics. You know, how you're going to package all this stuff. … I mean, we've figured it all out, and it's fine. It was just stressful at first. [ID-20]

Table 2. Marketing Practices Newly Developed in Response to the COVID-19 Pandemic

Practice	Motivation	Advantages	Disadvantages
Prepackaged products: Harvested items are placed into bags or containers according to the predetermined quantity.	**Health and Safety**: Minimizes the number of people handling customers' food.	• Facilitates social distancing • Perceived customer appreciation • Efficient sales transactions • Increased revenue • Improved inventory skills	• Time-consuming • Reduced consumer engagement and education • Product takes up more space • Packaging costs • Trial and error process • Environmental concerns due to increased plastic use • Must harvest produce sooner
Pre-orders: Customers can place orders prior to pick-up.	**Health and Safety:** Responses to logistical concerns imposed by social distancing **Policy**: Requirement by select farmers markets	• Facilitates social distancing • Increased sales volume • Increased financial certainty for farmers • Assurance that product will not run out • Increased autonomy • Customer preference for online shopping • Reduced food waste • More efficient sales transactions • Meets increased demand	• Increased administrative time • Credit card fees • Website costs • Not accessible for all customers (requires computer literacy) • Learning curve to match inventory with demand • Increased workload • Reduced social interaction and community-building

> We discovered what it's like to pack up a [CSA] share. … We now know how that is, and what it takes. And that the job of packing up a share, having the customers do that is valuable to us. [ID-11]

Broadly speaking, most farmers used a combination of both practices to balance the disadvantages of one with the advantages of another, helping them to move product efficiently and remain financially viable.

2.2 Least Commonly Adopted Practices

We identified five practices employed by fewer farmers in the study. In order from most to least common, they were on-farm pickup, increased online marketing, delivery service, cooperative sales model, and increased prices (Table 3). While presented separately, these less commonly adopted practices often occurred in tandem with prepacked pre-orders. Although less common, these practices are worth noting because they were particularly novel in the context of the pandemic response.

Table 3. Marketing Practices Using Existing Assets

Practice	Motivation	Advantages	Disadvantages
On-farm pickup: Increased public access to the farm, either for the first time ever or to a greater degree (e.g. more days, longer hours).	**Health and Safety:** Caters to customers who are not comfortable with other DTC markets. **Logistics**: Sale of product that is not dependent on external market venues.	• Facilitates social distancing • Increased sales volume • Facilitates social interaction and community building • Reduced food waste • Capitalizes on customers' flexible schedules • No transportation time	• Increased administrative time
Increased online marketing: Use of websites, emails, newsletters, and/or social media accounts to communicate with customers.	**Logistics:** Provide updates on production practices, where to find us, and general COVID-19–related announcements	• Markets to existing customer base • Gains trust through transparency with customers • Platform to address social issues	• Time consuming • Unclear impact/ effectiveness • Requires technological skill (particularly for social media platforms) • Not appropriate for all customer demographics (e.g., elderly)
Delivery service: Farmers delivered product direct to the customer's door.	**Health and Safety:** The ultimate form of customer social distancing. **Financial:** Farms could easily pivot from restaurant to home deliveries	• Increased accessibility for all consumers • Ability to serve more households • Increased autonomy • Competes for market share with big-box grocery store delivery	• Time consuming • Requires existing transport vehicles • Requires existing staff to drive
Cooperative sales model: Farmers selling product made by someone in their social network through their existing direct marketing channel(s).	**Social networks:** Provide financial assistance to other local producers who lost their own direct marketing channels due to COVID-19	• Support Maryland farmers/ producers • Increased social capital • Maintain diversity of local businesses • Increased product variety for customers • Acquire new customers	• Increased administrative time
Increased price: Any increase in the 2019 price per unit due to changes to direct marketing practices.	**Financial**: Price increase reflects increased business costs and high level of uncertainty in future revenue	• Increased revenue per unit sold • Compensation for prepacking time and materials • Reflects increased demand in the market	• Potential loss of existing customers • Ethical considerations about increasing the cost of food during a pandemic

Particular attention should be paid to the disadvantages of adopting these novel practices, which may provide insight into why a practice that was reportedly successful for some farmers was not adopted by most farmers. Another significant observation is that the following set of practices drew upon existing resources (e.g., transportation vehicles), established business practices (e.g., price adjustment), and/or existing social networks.

Ten farmers reported adding an on-farm pick-up option. The practice of opening one's farm was most often reported by farmers who already offered an on-site CSA pickup and by those who wanted a way for additional local community members to purchase their food. Except for one farm that set up coolers to create a market stand, all on-farm pickups were facilitated through a pre-order system:

> I added a pickup location at my house on the island. And so I've had a lot of people, not just locals, but people that don't want to go to the market, pick up here. [ID-01]

Six farmers increased their online marketing or social media presence due to the pandemic. For two farmers, this was a deliberate response to the lack of in-person marketing opportunities in public spaces due to the stay-at-home order:

> We handed out fliers, and then we couldn't hand them out anymore, because of the stay-at-home order. Which actually was kind of an issue, because we would have liked more customers from just within just like five square miles. [ID-09]

However, most farmers chose not to increase online marketing efforts because they already had sufficient customer demand and could not increase production capacity any further.

Five farmers reported offering home delivery. Barriers to adopting this practice included lack of an established pre-order system, lack of existing staff, and/or lack of sufficiently large transportation vehicles. However, for the farmers who did have the resources and infrastructure in place prior to the pandemic, the shift from other direct markets to home delivery was swift:

> I mean, we had a lot of systems in place to enable us to turn. You know, just to do a 180 and do home delivery. So it wasn't terribly hard for us, but we had all that in place. [ID-18]

Four farmers reported selling certain products of another farmer (e.g., flowers) or food producer (e.g., pasta) to customers in their established markets. Cooperative sales appeared to be driven by the goal of maintaining local business diversity during the pandemic:

> And so there was a time where folks [other farmers] were bringing some of their pre-orders to us, and we were going to market, and they were making the coordination with their customer. … And it was simple. It was something that really cost us nothing. But it brought them some business that they really needed because they weren't going to market. So there was a bit of that going on. [ID-02]

The decision to increase prices across direct marketing channels was perhaps the most controversial adaptive practice. Only three farmers reported increasing prices to account for increased costs associated with changing direct marketing channels and distribution practices. No farmer lowered their prices, and the majority kept prices consistent with 2019 prepandemic prices. Some said that it didn't occur to them to raise prices, while others simply didn't think that a price increase was appropriate during the pandemic:

> We figure that it's a cost of doing business. I don't feel good about raising the price—it would never have gone down, it would have only gone up—because we were delivering, and we could have made a list of reasons why it was going to go up. But we just decided to keep it where it was and move forward. … I think people really were trying to find somebody that they could turn to and trust them. And of course, I want to be that somebody. [ID-02]

1.3 Reported Ease of Adaption

Although significant changes were made in terms of *how* farms sold DTC during the COVID-19 pandemic, most farmers reported that adaption was not difficult. This was largely attributed to being a business that was both providing essential services and experiencing a boom in demand.

> I did not anticipate a boom like this. That much interest in people not [emphasis] going into supermarkets. And quite honestly, it's been great. [ID-19]

> We were stunned. And every farmer (this is the dirty secret) every farmer sold more during the COVID-19 shutdown. [ID-02]

Many considered their small size and direct marketing channels to be key factors in their success. A few farmers even mentioned feeling vindicated by the ability of their small to medium-sized farms to respond swiftly to community needs during the pandemic:

> We are adaptable. And we are quick. … And the small sustainable farm is so important to food security. … There's a place for the big guys, but there's sure as hell place at the table for the little guys. [ID-18]

Several also said that farming was not just a job but a passion and calling. This served as a motivating factor for both themselves and their staff:

> This is pretty noble work to begin with—producing food for your local community. … And I'm a second career farmer, and so, I didn't do this to make money. I did it because it [farming] was a calling to me. [ID-16]

It is possible that this outlook played a vital role in the response, because while the farmers reported being overworked and exhausted, they were generally proud of their ability to respond to community needs and be resilient under extreme conditions.

Discussion

Local food systems augment national and global food markets to create a more resilient food system (Millar et al., 2013). In the area of direct marketing, a major driver of resilience at the local food system level, we noted that farmers were under dual pressures. First, from the perspective of sociological systems, new public health guidance for social distancing changed previously viable direct marketing channels. Governing bodies, both at the state level and local farmers market level, worked to rapidly provide vendors with guidance about how to interact with customers. Farmers were also motivated to develop their own contactless ordering and pick-up methods out of respect for their customers' health and safety and for that of their own employees. Second, in terms of agricultural systems, farmers were faced with a perishable product that must be harvested on a predetermined timetable, intensifying uncertainty about where and how they would be permitted to sell their product. Under these conditions, resilient farmers were able to address the one side of the system they did have some control over: direct marketing channels.

The results of this study yield important insights into response diversity and adaptive capacity displayed by local farms in Maryland engaged in DTC and intermediated marketing channels. Every farmer in our study responded slightly differently, but the adaptation and resilience displayed by all is a key reason why farmers didn't simply go out of business. These changes were supported by a reported increased community demand for locally produced food. Not only did these businesses survive, but most actually reported higher revenues than they had projected before the pandemic hit. Farmers who sold to restaurants were most impacted, but resilient farmers managed to successfully pivot into new marketing channels and/or employ new practices. Established CSAs were reported to be an optimal method for reallocating produce originally intended to be sold to reduced/terminated marketing channels. Farmers in our study reported an influx of new customers interested in purchasing a CSA share as other fresh and premade food options became less available. In addition, although pre-ordering systems existed previously, this technique became a significantly more prominent mode of marketing among local food producers during the pandemic. Combined with the universal practice of prepacked produce,

most farms represented in this study successfully changed their distribution practices in response to the pandemic.

The timing of the pandemic was also highlighted as a key determinant of farmers' success. In the early phases of the pandemic, farmers in Maryland were focused primarily on the production of food, and a minority of farms in this sample were actively harvesting and selling produce. Furthermore, the state classification of farmers as essential workers allowed farms to continue business operations relatively uninterrupted. According to our interviewees, had the pandemic impacted daily life in Maryland a few months earlier or a few months later, it is likely that production and/or sales would have been adversely affected. The Maryland stay-at-home order was also significant in that it permitted the movement of customers, because grocery shopping was deemed an essential activity for health and safety (Maryland Executive Order, 2020, p. 3). In fact, elevated customer demand signaled that even though big-box grocery stores were still open and available to the general public, shopping direct from the farmer in an outdoor setting was reportedly a preferred shopping experience for many customers in Maryland and elsewhere (Barnard, 2020; Dance, 2020). This may be because buying direct from the farm offers more air circulation as compared to indoor stores, provides the customer with a pleasurable experience, and is an opportunity to support local businesses.

We have presented a variety of perspectives and responses among farms selling produce direct-to-consumers in Maryland. We cannot be certain, however, how generalizable findings from our study will be to farmers in other geographic regions. In addition, farms that were involved in our study tended to be smaller because larger businesses were less responsive to our recruitment efforts. Furthermore, farms that agreed to participate may have been among those who already successfully navigated adversity within the first months of the pandemic and were, therefore, more willing to speak with researchers.

This research fills a critical gap in understanding Maryland farmers' resilience capacity and ability to adapt to shocks in the food system. While previous literature has focused on measuring the amount of resiliency within the food system (Cutter, 2016; FAO, 2016), our research aimed to observe and catalog effective practices used by individual farm operations and communicate them to the research community. The disruption caused by the COVID-19 pandemic presented an opportunity to explore and capture how Maryland farmers have adapted thus far. Moreover, the observed capacity of farmers to continue feeding their community speaks to the importance of small to medium-sized farmers in the food localization movement, as we look forward and prepare to address future pandemics and other types of potential disruptions, such as natural disasters.

Further research is needed on farmers engaged in direct marketing upon resolution of the COVID-19 pandemic to determine which adaptive practices farmers choose to maintain, discontinue, or perhaps further innovate upon, and why. In the short term, there is value in studying how farmers will choose to manage their production capacity and/or how the use of online storefronts may change as local institutions and restaurants reopen at full capacity. In the long term, it is worth examining how farmers' sales to any one direct marketing channel change in response to a temporary shock, and how the adaptations may become permanent. Dissemination of such research could inform farmers more broadly on how to improve production efficiencies, increase profit margins, and diversify marketing channels, thus allowing them to remain operational and continue playing a role in local systems, which may help with weathering future disruptions. It should be noted that our research did not try to evaluate the effectiveness of methods used by farmers. Rather, our findings could help inform future quantitative studies to measure the effectiveness of responses and reported modifications. We assert that there is substantial value in future research focused on small to medium-sized farms that sell food DTC, as they are a critical component of food system resilience.

Conclusion

Our study explored how fruit and vegetable farmers in Maryland responded to the COVID-19 pandemic. Results suggest that DTC marketing

practices—CSA, farmers markets, and pick-your-own—continued to be effective marketing channels well-suited to withstand the disruption caused by the pandemic. A variety of farmers' responses and adaptive practices were identified. Participating farmers demonstrated resilience as they reorganized and adapted key marketing and food distribution practices in response to health and safety, logistical, and financial concerns.

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