Supporting the human element of farming:
Building long-term careers on small-scale vegetable farms through increased social sustainability

By

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Abstract

Labor plays a critical role within the smaller scale diversified vegetable industry, yet many farmers struggle to see a future for themselves in farming – one that adequately supports their emotional, physical, and financial needs. Presented in the form of an *applied scholarship portfolio* and directly informed by farmers' voices, the four distinct components of this dissertation explore how farm-level policies, practices, and professional development can build long-term career opportunities for farmworkers in ways that also support enhanced social and economic resilience for farm owners. In "Growing organic vegetables during a pandemic: Case studies of two Midwestern farms," I explore how two farms navigated the early months of the Covid-19 pandemic, paying close attention to the crucial role that strong employment practices and greater employee retention can have on farmer and farm-level resiliency. In "The TEAMs program: Supporting the human element of diversified vegetable production," I discuss the creation of a peer-to-peer labor management training program that supports career advancement for farmworkers through strengthened leadership and management skills. In "Farming into the future by centering farmworkers: A deep dive into what diversified vegetable farm employees value in a work experience" my co-authors and I present data, tips, and examples that can help farm owners meet workers' needs in ways that also bolster the farm business. And in "Skilling and scaling agroecology: A case study from the U.S.," my co-authors and I offer a framework that recognizes workers' skills as a primary driver for advancing a just transition from conventional production towards agroecological food systems. Together, these components seek to emphasize that when we invest in and nurture farmworkers, the entire industry stands to benefit.

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Well, there's no point in burying the lead. This is a pretty exciting moment! I started down this path in 2012. I left and returned three times. I changed programs. I worked full-time and dissertated part-time. I experienced a lot of self-doubt and wasn't sure I'd actually make it to this point. But here we are! And it feels pretty darn good.

I'm so grateful to all of the people who continued to cheer me on along the way. To my mom and dad: This is as much my celebration as it is yours. You've always believed in me and trusted that I knew what I was doing – or that I would at least figure it out along the way! I love you both so much.

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Introduction

In the United States, to be an agricultural laborer means to share a history of violence and trauma. This history is rooted in the theft of land, the enslavement of human beings, and the inscription of a highly exploitable workforce – all in service of a carefully designed and intentional wealth-building enterprise (Sbicca, 2018; Ray et al., 2020). As the agricultural industry developed over generations, the wealth of our country has grown while the value of farm labor has remained depressed (Brown, 2021). Numerous factors continue to reinforce this reality today. Together, lobbying, advocacy, and legislation shape market prices, determine labor protections, and influence the flow of federal and state funds.

The farm-level impacts of these actions are felt differently across sectors, and yet the agricultural winners in this equation have tended to be larger scale commodity operators, not the owners of smaller scale diversified vegetable farms. And certainly not farmworkers. While corporations and politicians have most often advanced these efforts on account of their shared agribusiness interests, there have been times when smaller scale farm owners have also joined the fray (Gray, 2013; Getz et al., 2008). Ultimately, these actions have served to devalue agricultural labor by prioritizing "Big Ag" over smaller scale diversified farms, by positioning consumers against farmers in a free market economy, and by pitting farm owners against farmworkers in an effort to cut labor costs amidst narrow profit margins (Mitchell, 2021).

Awareness of our shared agricultural history may vary from one person to the next, but its consequences often remain obscured – especially within the broader consumer space. For some, to envision a smaller scale diversified vegetable farm today is to envision idyllic landscapes, perfect produce, and a happy farmer living an intentionally humble life. Essentially, the picture of sustainability (Brown & Getz, 2008). Consumers who may be eager to assuage

their worries about an increasingly globalized food system need only turn to their local farmers. To vote with their forks, as they say (Obach, 2017; DeLind, 2011; DuPuis & Goodman, 2005). Yet within this mainstream "market-as-movement" approach, the impetus is on the consumer to use their food dollars to essentially correct the ills of our contemporary food systems (Alkon, 2014, p. 30). Unchallenged is the neoliberal apparatus that continues to deepen societal inequalities within a food system that was built to be structurally and systemically racist (Minkoff-Zern, 2017). Disenfranchised are those without the financial means to participate (Obach, 2017; Myers & Sbicca, 2015). And overlooked are the realities of the farmers laboring on smaller scale vegetable farms across the country (Alkon, 2013; Gray, 2013; Holmes, 2013).

I offer these considerations not as criticisms or indictments of good intentions, but rather as a way to move us closer to expanding our shared understanding of a deeply complex issue. Indeed, engaging in these place-based activities and strengthening local food economies is crucial. Most recently, the Covid-19 pandemic has shown us the importance and subsequent impacts of investing in robust local and regional food production and distribution systems (King et al., 2022). However, there is a shared sentiment that the diversified vegetable industry in this country is not set up to help smaller scale farmers thrive. Instead, as Maryland-based farmer Rue Policastro explains, there is a very strong feeling that, "In a lot of ways, this is a system that's really setting many of us up to fail" (personal communication, January 27, 2023).

Unlike construction, manufacturing, and other skilled trades, agriculture has rarely been regarded as a "family supporting" industry (Mitchell, 2021). Many of the farmers I spoke with reiterated this, emphasizing the challenge of simply supporting oneself as a member of the agricultural workforce, never mind a household. This industry has been designed to deskill farmers, to devalue labor, and to flatten mobility – all in service of the agricultural legacy we

considered earlier (Ray et al., 2020; Minkoff-Zern, 2017). Yet as conversations around climate chaos, labor shortages, and just agricultural transitions move to center stage, we need to be asking how this labor market can become more sustainable. What needs to happen for someone to be able to do this work long-term, and can smaller scale diversified vegetable production become a profession that actually supports robust livelihoods? There is a clear need to nurture a different kind of agricultural labor economy – one that advances dignity, skill, and mobility to support worker agency and long-term career paths in diversified vegetable farming.

What we tend to see today stands in fairly clear contrast to where we want and need to go. Indeed, to zoom in on this particular landscape is to see some of the present-day impacts of our country's agricultural legacy. We see a largely white landowner class, supported by centuries of overt discrimination and dispossession (Castro & Willingham, 2019; Leslie et al., 2019). We see narrow profit margins squeezed even further by unfair prices and a lack of parity within the marketplace (Levy, 2019; Guthman, 2014; Gray, 2013). And we see unpaid costs of production, passed on to farmers through long hours, low wages, and absent benefits (Shreck et al., 2006). Together, this paints a clear image of what it means to farm at this scale. That to be a smaller scale farmer is to sacrifice – your body, your financial well-being, and your quality of life. And New York-based farmer Larry Tse reminds us that this is further paired with an understanding that farming likely requires a certain level of social and economic privilege in order to take on that financial risk in the first place (personal communication, March 7, 2023).

Stepping back, we are left with this reality: working in this industry means navigating a myriad of entrenched challenges rooted in policy, legislation, and practice. And yet among farm owners and farm employees, we also see a shared emotional and visceral struggle to build a long-term career in farming – to somehow make it work. These two groups experience many of

the challenges mentioned above in unique ways. Sometimes their interests overlap and encourage solidarity and collective problem-solving. Other times their needs diverge and lead to tension and disagreement. Across these points of unity and division, however, we find one overarching consideration that serves as a sort of universal backdrop: that as an industry, smaller scale diversified vegetable farming has come to rely heavily on hired labor (Holt-Giménez, 2016). In other words, in order to create a long-term farming future for themselves, workers and owners need one another.

"When it comes to the sustainability of our farm, we are completely and totally reliant on our employees." Throughout my conversations with farm owners across the Midwest and beyond, many echoed this sentiment shared by David Bachhuber, owner of Wisconsin-based Lovefood Farm (personal communication, April 2, 2020). Employees make it possible for owners to expand their operations, reap scale efficiencies, and serve more markets. They also bring great value to the farm through their skills, dedication, and specialized knowledge. Yet in recent years, farm owners have faced increasing difficulty with attracting and retaining workers from season to season. Regularly hiring and training a mostly-new farm crew each year has major implications – not just for the farm business, but for everyone working on the farm as well. This process takes time, energy, and money, and without longer-tenured employees, there is less institutional knowledge on the farm. This often translates to a severely limited capacity for improving systems and efficiency and engaging in creative thinking and innovation (personal communication, July 29, 2019).

As farm owners hope to move towards greater stability through improved retention, a growing number of farmworkers also have their sights set on something: a more viable career path. Based on the research supporting this dissertation, factors like seasonality, lower wages,

limited benefits, and weaker levels of organizational professionalism combine to make it difficult for individuals to pursue farmworking as a long-term, sustainable career option. As Tyler Keenan, a farmworker in Michigan, shares, "I'm reaching a point in my life where my partner and I are looking to start a family. And suddenly the money that was fine when I was single and willing to be super cheap isn't working anymore. It feels like the ceiling for farm work is not that high. So I've been thinking through scenarios: Do I get a different job? Do I not get a different job? Does she have to get a higher-paying job so we can live the life we want to live, and so I can live my farming dream? Or do I need to give this up so we can build something together?" (personal communication, June 20, 2022).

If we look to the center of these struggles, we see something deeper – a question that points to resilience and invites us to explore the connection between that resilience and farmers' social and economic sustainability. Both owners and workers are engaging in multiple strategies in order to make farming possible, and often these strategies – working multiple jobs and going without health care, for instance – cannot be sustained over time. There is a question, therefore, of how long farmers can continue to do this work that demands so much of them without in turn receiving things like fair compensation, occupational stability, and a healthy quality of life. The words farmers have offered in service of this dissertation suggest that this industry may truly be at a crossroads.

Crafting an applied scholarship portfolio

Farm owners and farmworkers have unique needs that often put them at odds. But in a deep and undeniable way, they also need one another. At its core, this dissertation is a recognition of this fact. Presented in the form of an applied scholarship portfolio and directly informed by farmers' voices, the components of this dissertation aim to support both employees

and owners in concrete and meaningful ways that help them advance their mutual needs and interests – and hopefully transcend some of their differences. As I have come to define it, a dissertation in the form of an applied scholarship portfolio is directly shaped by the primary audiences it seeks to serve. While it is further supported by peer reviewed sources, this approach regards the lived experiences of the primary audiences as a valid source of data and consists of practical outputs that may be of immediate use to those audiences.

Adopting an applied scholarship portfolio for this dissertation is also an attempt to contribute to the discussion around what is recognized and accepted as legitimate research in the eyes of the academy. Academic research has a long history – one that is grounded in extraction and imperialism (Gram-Hanssen et al., 2021). As Linda Tuhiwai Smith (2012, p. 5) cautions us, research is not "an innocent or distant academic exercise, but an activity that has something at stake and that occurs in a set of political and social conditions." Often inherent within these pursuits are power asymmetries and the question of who is deemed capable of contributing to research.

Reflecting on the experiences of indigenous peoples and against an imperial and colonial backdrop, Tuhiwai Smith interrogates the image of the passive subject that has research "done" to them; who has been regarded as having no expertise in their own experiences or conditions. In certain contexts, would-be subjects may be weary of stepping time and again into a less-than-reciprocal relationship where they have little power and influence over how the information they share is used and who it ultimately benefits. I was not surprised to encounter this hesitation myself, as on more than one occasion, farmers asked me what I was planning to do with this information. Would I be sharing what I learned with them? Or would this knowledge stay within the walls of the university, as many had come to expect?

Across anti-colonial discourses, we see a consistent and coordinated effort to "assert and claim humanity," and to acknowledge that all humans are capable of participating in knowledge creation (Tuhiwai Smith, 2012, p. 27). I have sought to approach this work in a way that centers farmers' agency, amplifies their expertise, and views knowledge creation as a means of self-determination – following the guidance of and seeking to be in alignment with decolonial methods.

In action, creating this dissertation in the form of an applied scholarship portfolio meant a number of things. It meant building trust, listening, and learning. It meant applying for grants so that I could compensate farmers for their time and labor. And it meant creating the structure for farmers to guide this work so that its outputs would ultimately serve their needs first and foremost. Though this dissertation format may not be considered traditional, many of the signature pieces of rigorous academic research are present within this work. I conducted this research with Institutional Review Board approval, I used formal data collection tools, and I transcribed and coded interview and focus group data. But I also created and held space for farmers' active engagement throughout the entire process. Through our conversations, farmers not only identified the need for the resources that would ultimately become the components of this dissertation, they also helped to shape and refine them through extensive discussions and working meetings.

In many ways, the Wisconsin Idea is at the heart of this work. At once a dream, a promise, and a challenge, this principle compels us to serve the state – to see the boundaries of the university and the boundaries of the state as one and the same. Many researchers and academics take great pride in this rich history and tradition of service, yet we cannot deny that the meaning of the Wisconsin Idea is hollow if we fail to weave its tenets into the fabric of our work.

Stepping into this frame requires intentionality and care. I also believe that it requires an understanding that as applied social scientists and researchers, we are going to learn the most from the people we aim to serve. And to this end, the knowledge that we create in partnership with these individuals will be more valuable than anything we might create on our own.

Summary of dissertation components

The four unique and complementary dissertation components that follow focus primarily on change that is possible at the farm level. This was intentional and directly stems from farmers' expressed feelings that there are already so many things that they struggle to control. Being presented with a set of resources that only serves to amplify this feeling would likely do little good. That said, this work is one discrete piece of the much broader, power-shifting transformational work that is needed. Indeed, without structural and systemic changes at all levels aimed at dismantling the agricultural industry as it exists today, our food systems will continue to perpetuate exclusion, inequity, and exploitation (Lakani, 2021). Fortunately, there is an entire body of work along with countless individuals, institutions, and organizations addressing these challenges on various levels in an effort to create more just and fair food systems.

Component #1, "Growing organic vegetables during a pandemic: Case studies of two Midwestern farms," explores how two farms navigated the early months of the Covid-19 pandemic. Each case considers farm-level changes owners made to their employment practices, health and safety protocols, and marketing channels, with additional focus given to their mental health and wellbeing during a time of profound stress and uncertainty. From these cases, we can also extrapolate a few high-level takeaways – namely the crucial role that strong employment practices and greater employee retention can have on farmer and farm-level resiliency. This

resilience, in turn, can support robust local and regional food systems that are more capable of serving communities during times of increasing disruption.

Component #2, "The TEAMs program: Supporting the human element of diversified vegetable production," introduces a public-facing program called Training and Education for Aspiring Managers, which I co-created with a group of farm managers over the course of 2021 and 2022. Through in-depth interviews and discussions, farm employees from across the country communicated a clear interest in a program that would help them strengthen their leadership and management skills while also creating space for them to learn from one another. Given how labor intensive diversified vegetable farming is, humans are responsible for achieving a great deal of the day-to-day work that takes place on the farm. While typically confident in the role of producer, both farm owners and farmworkers have indicated that they often feel unprepared – even uncomfortable – in the role of employer and manager. Many farmworkers indicated that targeted support in this area would help them feel more confident stepping into formal leadership positions on the farm. Given that a growing number of employees see this work not as a short-term experience but as their long-term profession, addressing this need can directly impact both career development and employee retention.

Component #3, "Farming into the future by centering farmworkers: A deep dive into what diversified vegetable farm employees value in a work experience," presents information gathered through a national farm employee perspectives survey, in-depth focus groups with farmworkers throughout the country, and additional interviews with both workers and owners. Informed by workers' voices and experiences and created in deep partnership with two farmworkers, this resource explores four key factors that employees have said attract them to a farm and would likely contribute to their retention over time: strong communication, a

professional and safe work environment, opportunities for growth and advancement, and livable wages. Within this component, we also discuss white supremacy culture – a framework that movement actors are using at an increasing rate. This frame is similar to racial capitalism and intersectionality in that it seeks to explore and understand the many ways that social justice concerns – from racism and sexism to ableism, transphobia, and more – overlap to create many levels of social injustice (Montenegro de Wit, 2021; Cho et al., 2013). Taken as a whole, this resource aims to provide farm owners with data, tips, and examples to help them meet farmworkers' needs while also strengthening the farm business and improving everyone's quality of life. We created this resource as a living document, which will allow for its continued expansion as we learn more and as workers' needs evolve over time.

Finally, Component #4, "Skilling and scaling agroecology: A case study from the U.S.," examines agroecology's ability to support a just transition away from conventional production. Along with co-authors, I consider the Organic Vegetable Farm Manager Apprenticeship – a program that supports the advancement of long-term career paths within the diversified vegetable industry – as one example of how this might look in a localized context. By matching the program's competencies to both project management categories and agroecological principles, we aim to provide a blueprint that supports a just transition from conventional farming to agroecological food systems – both abroad and at home.

While farmers and practitioners may engage with these dissertation components in a number of different ways, I see them as all working in service of one core goal: to support long-term career opportunities in farmworking by enhancing social and economic sustainability. Over the years, many of my conversations with farmers were tinged with sadness and sometimes despair. I talked with farm owners who came to this work filled with inspiration but who now

feel like they have lost any semblance of who they are outside of farming. And I talked with farmworkers who so deeply want to continue doing this work but who no longer believe they will ever be able to move past the instability and financial hardship that has marked their years in this profession. These conversations were heavy, and the answer to the question of whether farmworking is a viable career often pointed towards "I want it to be, but I really don't know" (personal communication, June 29, 2022).

Yet hope remains, and this dissertation is a testament to that. Many farmworkers are refusing to accept what they have regarded as the traditional norms of farm employment: low pay and limited benefits, weak professional infrastructure, and a top-down leadership style. They are talking with one another, they are looking for farms that value their skills and their well-being, and in many ways, they are forging a new path. More and more farm owners are also prioritizing these things – for themselves and for their employees, who many increasingly regard as invaluable partners in their businesses.

Who are the farmers represented in this work to date?

Before turning to Component #1, let me share an important note about representation. Up to this point, I have been using the term "farmer" in a way that runs the risk of implying homogeneity. While many individuals working in agriculture adopt this term as part of their identity, their lived experiences may in fact differ greatly. To this end, it is important to be transparent about whose voices and perspectives have informed this work up to this point.

The dissertation components that follow reflect the experiences of a very specific segment of the agricultural workforce. As a group, these farmers tend to be highly educated and speak English as their first language. They own or work on smaller scale diversified vegetable operations, and it is likely that a specific set of circumstances brought them to this work –

namely their interests and passions. On the whole, these individuals likely experience different privileges and protections compared to the majority of our country's agricultural workforce – which is disproportionately comprised of Mexican-born workers (USDA-ERS, 2019; Minkoff-Zern, 2017; Holmes, 2013).

Working with partners like Not Our Farm, which directly serves and supports a diverse group of farmers, has helped expand the participation of queer farmers and farmers of color in this work. However, while USDA demographic data is not broken down to reflect the racial and ethnic composition of the small-scale diversified vegetable farm workforce, it is very likely that Hispanic voices and experiences are underrepresented in this research, while white voices and experiences are overrepresented. As this work evolves, I will continue to collaborate with organizational partners that have established relationships with farmers who are currently underrepresented in this research in order to invite their participation. While critical, these efforts take time, given the specific challenges that some of these farmers may face – from language and literacy barriers to legal precarity, social and economic disempowerment, and countless other factors. Fortunately, several others have amplified the voices and experiences of emerging farmers, agricultural guestworkers, and others who are laboring in fields across the country – sometimes without legal status or protection (National Young Farmers Coalition, 2022; Minkoff-Zern, 2019; Bowens, 2015; Gray, 2013; Holmes, 2013).

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Component #1

Growing organic vegetables during a pandemic: Case studies of two Midwestern farms

Introduction

For many diversified vegetable producers, the Covid-19 pandemic turned their worlds upside down. In a rapidly changing environment, farm owners were forced to act quickly. There was chaos and confusion, anxiety and fear. But there was also creativity, community-building, and problem-solving. The following case studies explore how two Midwestern organic vegetable farm owners navigated the early months of the pandemic. We see the major challenges, changes, and successes they experienced with regards to employees, health and safety, and sales and marketing. Facing such uncertainty, these farm owners also reflected on their roles as community-based food producers at this moment in time and their thoughts on how this new environment may impact their operations over the long term.

The pandemic united farmers in key ways, but it also created unique challenges and opportunities at the farm level. The take-aways below provide us with a glimpse of how these farm owners attempted to remain operational while continuing to meet local needs – often making decisions based on partial information and without a clear understanding of what the landscape would look like in the weeks and months ahead.

Four key case study take-aways

"Having these experienced workers brought a sense of stability and calm to everyone. Plus, it took a lot of pressure off of us as owners." During the early stages of the pandemic, the value of employee retention was made more clear than ever. As farm owners brought on new crew members – many of whom hadn't previously worked in vegetable production – having experienced employees available to assist with onboarding, training, and general support was

crucial. Strong retention rates allowed Katie and Hans at PrairiErth Farm to delegate more of the day-to-day tasks to their returning employees, which ultimately allowed them to focus more energy on bigger-picture challenges. At Lovefood Farm, meanwhile, fewer returning crew members meant that David found himself working to manage both the daily operations and the larger scale changes the farm was attempting to implement.

"What does the future look like? I don't know. I see almost no chance that we'll have the same volume next year for CSA. And it's difficult making those shifts and investments when they're probably temporary." Diverse sales channels can build resilience and help farmers adapt during times of disruption. As restaurant accounts nearly disappeared in the early months of the pandemic, these farm owners were able to offset lost income by scaling up production to meet explosive demand for community supported agriculture (CSA) shares. At the same time, both struggled with knowing how much to invest in these changes when it wasn't clear whether or not they would be sustained over time.

"The pandemic has further highlighted how creative and impactful farmers can be—especially if they work together." As the pandemic developed, we saw panicked shoppers, supply chain disruptions, and empty shelves. And while this experience produced much fear and uncertainty, it also highlighted the role that smaller scale, local farm businesses with shorter supply chains can play in connecting people with safe and healthy food. These case studies also show us how collaborating with other partners across the food system – like schools, food pantries, and local aggregators – can amplify this impact and make a difference for community members in real time.

"So many of these situations seemed so scary at first, and it's super stressful because you're trying to figure out how the pieces fit together. But then they do. This has allowed us to

reinvent ourselves a little bit." Major disruptions can be an opportunity for experimentation and change, prompting farmers to reevaluate how they have always done something and asking if there might instead be a better way to operate. We see this on a smaller scale, as with the unexpected but welcome efficiency of packing CSA shares into plastic bags. But we also see this in bigger ways, like with the creation of an online store, the implementation of home delivery, and the decision to prioritize work-life balance over farmers market participation.

Now, over three years into the pandemic, it has become clear that farmers will continue to operate within this environment long into the future. And while risk has always been inherent in this industry, farmers have noted what feels to them like a momentous shift in the frequency and severity of these risks. As they continue to grapple with how to remain viable in a climate increasingly beset by disruptions, we can take several larger findings from these cases and apply them to the broader context within which farmers are now operating.

Four broader implications

"We started with more employees but now we're down from 18 to 14. This work is hard already, but now, everyone's capacity for stress is extremely low." Underemployment on diversified vegetable farms impacts the farm owners, the farm business, and the farm employees. In a pandemic environment, farm owners may recognize and strive for overstaffing as a way to manage stress and accommodate illness among the crew. But their long-standing struggle to attract and retain workers is intensifying, as farm wages and benefits are being outpaced by more competitive offerings in other industries. With understaffed farm crews, more work is spread across fewer people in an effort to maintain what are often already narrow profit margins. One clear consequence of this chronic understaffing may be the exact opposite of what farm owners need – even weaker employee retention rates.

"I need to be someone that's not just a farmer. And I've lost my identity outside of farming because I can't leave this place very often." For many farm owners, establishing and maintaining what might be considered a healthy work-life balance is extremely difficult. But when faced with larger and sometimes compounding disruptions – like the pandemic and climate change – it may feel downright impossible. As farm owners consider the longer term implications of continually coping with such high levels of stress and uncertainty, some are making major changes to their operations. Whether it be scaling back CSA due to understaffing, dropping farmers markets to spend more time with family and friends, or exiting the industry altogether, owners are reflecting on what they value and whether they can farm and have the type of work-life balance they ultimately want and need.

"I have this incredible, potentially once-in-a-lifetime opportunity to keep this many people engaged through CSA." The pandemic saw a huge number of people turning to CSA for the first time. While the short-term impacts of this increased demand benefited farmers who had lost other key revenue streams, questions about long-term member retention remain. Specifically, farmers wonder whether these new CSA members' relationships with the farm are more transactional in nature, rather than tied to a deeper connection and commitment to the farm and its principles. If the former, farmers worry they won't be able to retain these members over time, as the CSA model likely won't offer the convenience and immediate access people may ultimately prioritize. While many recognize CSA as an opportunity to meet local need via shorter supply chains, a key question remains: does the CSA model need to adapt to meet the needs and wants of a broader customer base? And by extension, to what degree does farmers' long-term viability hinge upon this adjustment?

"When the pandemic started, I couldn't tell if I was overreacting or underreacting. I had no clue at all, and I actually feel like I'm not going to know for a couple of years." During times of major disruption, farmers do the best they can with the information they have – which may be severely limited. The pandemic prompted many farmers to make huge investments to facilitate adjustments to their operations, from creating web stores and purchasing refrigerated trucks for home delivery to installing additional infrastructure to support scaled-up production. But making these investments without a clear picture of what the landscape will look like from year to year is highly stressful, and farmers worry whether the decisions they're making are the correct ones. However, as they look ahead, farmers may be able to apply some of the pandemic-related lessons they have learned as they navigate an unclear and, at times, tumultuous path forward.

These case studies capture a moment in time. But they also speak to the broader trends and overarching questions that many farmers are grappling with. Smaller scale organic vegetable production is a notoriously difficult industry, and in an environment of accelerated and compounding disruptions, farmers' own assessments of what they can handle – and what they're willing to handle – are changing rapidly.

Case study #1: Lovefood Farm

Farmer: David Bachhuber
Interviewed on: May 28, 2020

Farm Snapshot:

- Year farm was established: 2015
- Number of seasons of vegetable production: 6
- Location: Stoughton, Wisconsin
- Acres in production: 8 acres in vegetable production
- Growing practices: Certified organic
- Main sales channels pre-pandemic: Grocery, farmers markets, CSA, restaurants, value added
- CSA membership in 2019: 110
- CSA membership in 2020: 360
- Hired employees in 2019: 8 (all part-time)
- Hired employees in 2020: 7, with a goal of 12 (full-time)

Key considerations for the farm crew

- A larger crew size accommodates more labor-intensive tasks and mitigates risk of illness.
- Employees are instructed to minimize exposure while not at work.
- Experiential learning and pairing longer-tenured employees with newer employees has assisted with the extensive training required during this time.
- The farm has no written Covid-19 plan at this point, but various policies and practices are in place.

Crew guidance

When the pandemic hit, the safety of his crew was a major priority for David. In general, he makes it a point to stay out of his employees' personal lives, but with the stakes being so high, David no longer saw this as an option. His approach has since been to have very frank conversations with crew members about what role he sees the farm playing during this uncertain time. "Our goal is to feed people to either get them well again or help them maintain their health. We cannot screw up." Being able to achieve this goal is directly connected to the health of the crew. When they're not at work, David has asked employees to quarantine at home to the best of their ability. "We can't control what their roommates or partners do, which is nerve-racking, but we're just asking people to be really conscious about their exposure." Appealing to his employees in this way has resonated, and as the state has begun to reopen, crew members have initiated conversations with David about what sort of activities might be safe for them to engage in. "That's a huge relief," David says, "since it's prompted by them."

Added labor

David estimates that the new health and safety policies in place on the farm amounts to an extra 10 hours of paid work over the course of the week, with 4 crew members putting in an

additional 30 minutes each day. Due to this added labor, plus the uncertainty of whether or not crew members may become sick with the virus, David has hired more employees than he normally would. He's up to 7 but anticipates increasing that number to 12 by mid-season. "We need to make sure we have too many." Though the payroll is challenging, David sees this as a necessary precaution for the farm to take. Moreover, he points out that this is a crucial time for the farm as an employer within the community. And while Paycheck Protection Program funds are offsetting some of the additional costs right now, having extra labor in the years to come may be a change that David keeps in place.

Training

Attracting applicants hasn't been difficult per se, but finding and retaining experienced employees remains a long-standing challenge. This translates to the need for more extensive training, especially considering the new policies and practices in place and the larger crew size. "At a certain point, people glaze over if I try to present everything up front." During employee interviews, David makes a point to ask candidates what kind of learner they are. Many of them have the same answer – they most easily pick things up by watching and doing. As a result, training largely takes place through experiential learning. "I just make sure that the people who are less experienced are working with someone who is more experienced." He also tells his employees to expect regular feedback and to not take his input as a criticism. "Our goal on the farm is this spirit of constant improvement, so when I come back, no matter what, there are going to be things that I point out. It's a way for all of us to improve." This work, David says, is meant to ensure everyone has a shared understanding of expectations. "Once July rolls around, I don't want to have a conversation about how big a bunch of beets needs to be. If we get ourselves on the same page now, we can be better later."

But right now, without longer-tenured employees, David is really feeling the weight of this moment. As he onboards new workers and makes sure they have the tools and knowledge they need to succeed, he's also thinking through the many adjustments – and potential implications – the farm is considering making. That's a lot to keep up with, and as David says, "I can't be in all the places at once." Soon, he is planning to approach two of his employees to explore their interest in taking on a more formal leadership role.

Covid-19 plan

At this point, David doesn't have an official Covid plan for his farm but recognizes that having a written resource would be valuable for both him and his employees—especially as new crew members come on. "Every spring, you just try to keep your head above water, so I feel like we've got the things in place that I want to have in place." At the same time, one of his worst fears is having an employee get sick. "I don't know how to resolve that stress point," he says. "I don't think there's a way to do it. I think my job is just to live with that and mitigate it." One farm employee did recently come into contact with someone who tested positive for the virus. In response, David instructed this employee to go home, get tested as soon as possible, and remain at home until the test results—which were ultimately negative—came back.

Right now, the farm's policy is:

- Employees exposed to the virus but who test negatively can return to work 14 days after the exposure.
- Employees with no known exposure to the virus who test positively can return to work 14 days after their symptoms clear.

- Employees with no known exposure to the virus but who experience Covid-related symptoms may return to work 24 hours after these symptoms clear as long as their test results were negative.

While farmers are legally required to compensate employees who test positively, David is conflicted over whether to do so for an employee who is awaiting test results and ultimately tests negative. The employee who left work to get tested did receive compensation for the remainder of that day, but David wonders, "What if someone on the farm exposes the entire crew and everyone has to stop working for 2 weeks? It's a really hard thing to figure out, and I don't have a good answer other than to keep my fingers crossed 100% of the time."

Key considerations for health and safety and sanitation practices and policies

- Employees must wear masks when within 10 to 15 feet of one another.
- Broad but rigorous sanitation practices are in place, with employees trained on each task.
- Packing and delivery practices have been adjusted, and plastic liner bags have replaced wax boxes.

Masks and distancing

David requires all of his employees to wear masks when they're within 10 to 15 feet of one another. Knowing that doing so will become increasingly uncomfortable as the temperature rises, he spent time trialing different designs. Once he found what he thought would be the most comfortable mask for this type of work, he purchased them for his crew members. Spreading out in the field or starting at opposite ends of the beds while weeding or harvesting gives employees some space to work without a mask. But if they're even "questionably close," David has instructed crew members to put their masks back on. Though he has to remind them periodically, for the most part, everyone has been excellent in adhering to this policy. Hand cleanliness

remains an ongoing concern, however. “The thing I really worry about is people touching their masks. So I basically want them to put it on or leave it off, and then leave it alone.” Employees are instructed to sanitize hands between touching their masks.

Sanitation

The farm’s sanitation adjustments have been fairly broad, and a checklist ensures that specific items are cleaned daily. “Basically, we’re sanitizing everything. Anything people touched during the day is washed with soap and water and then spray-sanitized with Sanidate.” Employees receive training to ensure that they are able to properly clean each item on the list. David reflects that a number of practices – like sanitizing tables and washing hands before packing – were already built into the farm’s systems before the pandemic hit. One positive adjustment he did make, however, was building and installing new handwashing stations in the greenhouse and the packshed.

Delivery policies

Employees wear their masks when making home deliveries or dropping off wholesale orders. Though there is not heightened concern right now over transmitting the virus through produce itself, David has taken precautions when it comes to boxes. For the CSA and orders that come in through the webstore, the crew packs into a plastic liner bag on a sanitized table. While boxes are used to transport the bags to their destination, employees only hand over the plastic liner bag. When it comes to wholesale deliveries, produce is delivered in boxes just as it was before. Once these boxes are picked up from wholesale accounts, however, the farm’s policy is to set them aside for 2 weeks. For customers who pick up on the farm, they are instructed to remain in their vehicle and honk their horn to announce their arrival. After checking in to collect

their name, an employee then brings the order out and either puts it in the back seat through the car window or places it in the customer's trunk. This process eliminates any face-to-face contact.

Key considerations for sales channels and marketing

- Tremendous growth in the CSA has required major adjustments to the field plan, work flow, schedule, and delivery options.
- Customers—including non-CSA members—can shop via a newly created webstore and may choose a home delivery option.
- Investments in new equipment helped accommodate the expansion of the CSA program.

Community supported agriculture

In a typical March, Lovefood Farm could expect to bring in about $3,000 in CSA subscriptions. This year, that number skyrocketed to $20,000 as a 110-member CSA grew to 360. Not only did this growth require David to redo his field plan 3 times, but it also prompted a number of additional adjustments. In the past, CSA members would head to the farmers market where they would pack their own shares. Now, the crew is assembling all orders on the farm for the first time, and they're doing so twice a week to accommodate several new delivery options. In addition to picking up at the farmers market on Tuesdays and Saturdays, CSA members can elect on-farm pickup on Thursdays, or home delivery on Tuesdays or Fridays. David was cautious about making such a major change so quickly. "We talked to other farmers to get a sense of where things go horribly wrong and where we need to be careful." The harvest and packing schedule had to shift in significant ways to accommodate these changes, and the crew works ahead as much as possible. Though David sees the new on-farm preparation as being much less efficient, packing twice a week does serve to spread the load and the risk at this early stage. "We have our cooler thoroughly dialed in, so we have not seen quality issues with storing

from Thursday to Saturday before distributing." David emphasizes that this has made navigating these major changes much more manageable.

Webstore

As part of his effort to increase people's access to fresh and healthy produce, David worked with Barn2Door to set up an online store for the first time. Anyone can place an order, regardless of whether they are a CSA member or not. While online sales tied to the farm's spring plant sale were strong, the role and the impact of the store remains to be seen. "To be honest, I can't quite tell how I want it to do. The logistics of it are so challenging, so I can't tell if I'm hurting myself by getting 40 deliveries on top of 60 CSA deliveries." David's response has been to take things slowly, limiting orders and suggesting purchasing minimums while he sees how demand unfolds. Right now, he is encouraging customers to spend at least $15 each time they shop. Spending $20 or more makes them eligible to receive 10 percent off their order if they elect to use a provided promo code.

Home delivery

David sees adding a home delivery option as being directly tied to his commitment to get food to the people who most need it right now. With this opportunity, however, he sees great responsibility. By delivering to people who are sick or may be in high-risk situations, "we have to be so careful that we're not transmitting from one to another." This is where the extra health and safety precautions come in. And while David is confident in their system, he recognizes the importance of remaining vigilant.

With grocery and restaurant orders already going out every Tuesday and Friday, it was feasible to fold CSA and online orders into the mix. Purchasing a new van with two and a half times the capacity of their old van facilitated this adjustment. David uses zip codes to organize

deliveries, assigning them to Tuesday or Friday accordingly. Meanwhile, he uses a routing software called OptimoRoute to organize each day's deliveries. Two farm employees share the delivery driver role. On the day of, David sends the route to the delivery driver's phone. Customers receive an email letting them know when they can expect their delivery, while the built-in tracking function also allows them to follow the truck.

Right now, David charges $5 per home delivery. "We wanted to keep it on the lower side because we knew we'd have density to our deliveries." CSA members are not locked into one specific type of delivery, however, and David worries about that density diminishing if people decide they want to switch to a different option, especially now as some people are starting to feel more comfortable with being out in the community. "To switch over to pickup and then back to home delivery—it gets logistically complicated very quickly." As mentioned above, one mitigation tactic David has employed is incorporating suggested minimums for online orders.

Key considerations for farmers' roles and community collaboration

- Farmers can safely and consistently provide community members with healthy food.
- Collaboration with community partners remains critical.
- The farm's success during a time when many businesses are struggling provides perspective and underscores the necessity of food production.

We are living in an environment when uncertainty is high and people are fearful. As customers have shared notes of their gratitude, David is mindful of what he sees as his farm's role. "The choice is fairly simple, right? There are people in need of healthy food, and I have the thing they need." This perspective, he says, goes a long way. While David remains anxious about making sure the farm can continue to fulfill that need, it hasn't stopped him from working with

other community partners like a food pantry and two online stores that are aggregating locally produced goods and distributing them to community members.

For David, the pandemic has further highlighted how creative and impactful farmers can be – especially if they work together. In the early stages of the pandemic, a few schools reached out to him to see about sourcing vegetables. At the time, David was too worried about being able to meet his own CSA members' needs to sign on. Instead, he contacted a peer who had developed a strong relationship with several Madison-area chefs. In the past, this fellow farmer would work with a small network of growers to assemble weekly product lists for chefs to order from. With the bones of this system already in place, David proposed that the process be modified to meet schools' needs for fresh, local produce. And while the benefit of this approach was clear, there was another notable take-away: this process allowed farmers to focus on what they grow best. "When you're talking about schools, they want potatoes, carrots, bell peppers, and tomatoes. I know I can crush peppers and tomatoes, but I also know I just can't get to a competitive price with carrots and potatoes." To David, this is a powerful example of how "by working together like this, we can do so much more."

Key considerations for farmer mental health and well-being

- Establishing a sustainable work-life balance is especially difficult right now.
- Childcare is a major challenge.

When they began farming, David and his partner were intentional about protecting family time. "Home by 5:00 and Sundays are off except for watering the greenhouse." But, as he immediately points out, "part of the rules is the exception to the rule" and there are days when it's difficult to make this happen. During this time of pandemic, that is definitely the case. "It's incredibly overwhelming 130 percent of the time. You really have to have some systems in place

or it's going to hit the fan. So we've got those, but stuff is hitting the fan outside of our systems and all of that has to go somewhere." This has translated to late evening work, limited sleep, and very early mornings.

Despite this grueling schedule, David says his days still feel relatively normal in that every morning, he gets up and leaves for work. His wife, however, has endured a major shift in her schedule as she works remotely while taking care of their daughter. "It's just one of those real pieces to throw in. There are a lot of things we rely on schools for, and one of them is taking care of our kids." As schools moved to remote learning and summer activities were canceled, David emphasizes that, "The only reason any of this is working right now is because of my partner. I'm less affected simply because she is *more* affected."

Key considerations for thoughts on the future

- There is a high degree of uncertainty about CSA member retention.
- It is difficult to know whether the farm is making or losing money this year.
- A number of new practices will carry over into next year, including a larger crew size and increased sanitation practices.

With so much change this year, David feels a lot of uncertainty about what the future holds. "I see almost no chance that we'll have the same volume next year," he says, adding that he expects a significant drop in CSA numbers. While he believes there is great potential to retain people who had been interested in trying the CSA model before the pandemic hit, he is less sure about those who sought him out mainly as a means of ensuring their access to food. "That's the challenge of deciding to shift like this when we know it's probably temporary." David sees the farm at its most resilient and adaptable when there is a fairly even balance between grocery,

wholesale, and direct-to-consumer sales. Right now, the CSA has tipped these scales out of proportion, but David expects this to contract and eventually balance out again on its own.

"When the pandemic started, it was really how to tell where to go, and I felt like we really needed to move extremely fast. I couldn't tell if I was overreacting or underreacting. I had no clue at all, and I actually feel like I'm not going to know for a couple of years." David says that perhaps the most difficult thing right now is "figuring out if we're making or losing money when it comes down to the extra labor it takes to sanitize everything and to do home delivery. We're charging for it, but is it enough? We've done the math, but is it right?"

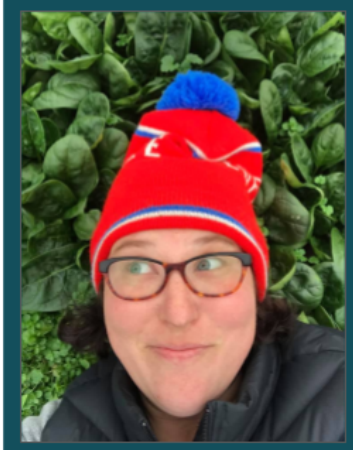
When it comes to newly instituted policies and practices, David sees several changes being incorporated into the farm's operations over the long term. He likes the idea of hiring more labor than in the past and plans to continue the additional sanitation practices they've implemented. Even home delivery is something he can see keeping in the mix, as long as the demand is strong enough. Dropping one farmers market this year has also been a mostly positive decision, since it has allowed David to spend more time on the farm training and working alongside his crew.

Case Study #2: PrairiErth Farm

Farmer: Katie Bishop
Interviewed on: June 4 and July 28, 2020

Farm Snapshot:

- Year farm was established: 1979
- Number of seasons of vegetable production: 12
- Location: Atlanta, Illinois
- Acres in production: 35 acres in vegetable production
- Growing practices: Certified organic
- Main sales channels pre-pandemic: Wholesale, farmers markets, CSA
- CSA membership in 2019: 165
- CSA membership in 2020: 321 (with a waitlist near 100)
- Hired employees in 2019: 14 (not including 2 farm owners)
- Hired employees in 2020: 18 (not including 2 farm owners)



Key considerations for the farm crew

- The pandemic created new management-related challenges, especially early on.
- Employees are encouraged to minimize exposure while away from work and are required to review and follow on-farm Covid-19 guidelines.
- A written Covid-19 plan is in place, including contingency plans to maintain operations.
- Efforts are in place to minimize stress for employees, including more breaks, slightly shorter days, and greater diversity in tasks and workflow.
- Employees with H-2A visas face additional layers of stress during the pandemic.
- Employee retention remains an issue, especially as the season intensifies.

Early challenges

As the pandemic unfolded, one of the first major challenges Katie and her husband Hans encountered was figuring out how to navigate and respond to crew members' concerns. One of their employees needed to stay home for a period of time to provide childcare. This was fairly straightforward, and the employee was compensated through the Coronavirus Aid, Relief, and Economic Security (CARES) Act. However, two other employees – a husband and wife – just didn't feel safe working in this new environment. As Katie says, "They were afraid to come to work, which we understood, but we couldn't ask the rest of our staff to come to work and then pay these two while they stayed home." But since these two staff members played very important roles – one as the delivery driver and the other as a team lead and interpreter for the farm's Spanish-speaking employees – Katie and Hans showed their appreciation by offering occasional food and financial compensation to help with rent and other bills.

But as May arrived, neither had committed to a return date, and Katie had reached the point of needing to bring on additional employees. Shortly thereafter, the delivery driver decided

to resign his position, while the other employee asked to return in a part-time capacity. Though they didn't have a need for a part-timer, Katie said, "We valued her, so we were willing to take her back in any capacity." Katie explained, however, that when it came to scheduling, full-timers would be offered priority hours. At this point, the employee became upset and quit. "We felt like we were being more than flexible and even generous at times," Katie reflects. "This really caused some turmoil and bad feelings. We were waiting on her to come back for months only to have her quit."

On top of this mounting stress, these departures brought another issue to the fore. At some point, PrairiErth Farm's payroll had reached the point of requiring them to pay into unemployment insurance, but Katie says she and Hans weren't aware of the guidelines and therefore hadn't begun this process. Though these two employees' claims would likely have been denied since their reason for staying home was not permitted under the CARES Act, Katie was still very troubled by this realization. "It's important for us to know the ins and outs of running a business and being an employer, and we failed here."

The value of employee retention

Almost immediately, Katie and Hans decided to hire more employees than they normally would, adding four new full-time positions to the crew. Onboarding and training new workers takes a lot of time and energy – two things Katie and Hans did not have in excess during these early months. However, they did have a handful of returning crew members with both production experience and strong leadership skills. Ultimately, this allowed Katie and Hans to focus on some of the bigger questions and adjustments they were working through, while empowering their more veteran employees to provide day-to-day support to newer workers. As Katie

reflected, “Having these experienced workers brought a sense of stability and calm to everyone. Plus, it took a lot of pressure off of us as owners.”

Managing employee stress

While hiring additional workers was due in part to demand, Katie says it was also meant to “spread the work out so no one was feeling like they were carrying such a heavy load.” However, at this point in the season, their crew is down from 18 to 14 employees and about half of these people are working in agriculture for the first time. “This alone brings its own set of challenges,” Katie says, but then when you consider all of the other compounding factors – from the weather and the workload to the emotional and financial toll of the pandemic – “everyone’s capacity for stress is extremely low.” In response, Katie is trying to keep work as manageable as possible. “We’re taking more breaks, trying to keep the days a little shorter, and we’ve cut back on a lot of wholesale.” Mechanical cultivation has cut down on some of the hand weeding, and crew members are switching jobs more frequently. “If they’re getting too tired in the field, we move them to the packshed to sanitize totes so they can just zone out and cool down.” Katie recognizes that these efforts cost the farm money, but she sees them as necessary investments at this point.

Another way Katie is trying to minimize stress for crew members is by providing them with a blank copy of the employee review as soon as they’re brought on. In the past, employees knew they’d be completing a review a month or two into the season, but they didn’t necessarily know what the process would look like or what the evaluation criteria would be. Now, Katie says, “We’re taking this more seriously. It’s a structured time for them to talk, and not knowing what’s expected of them adds this immediate layer of stress.”

Despite these efforts, Katie still worries. Many of PrairiErth's newer employees came to the farm after losing their restaurant jobs. "They weren't necessarily interested in farm work, they just needed a job." And as the season intensifies and the work gets harder, Katie feels like the commitment just isn't there for some of these crew members. "They now know that they're not returning to their normal jobs anytime soon. It's like we were a transitional job, and now they're wondering, 'Well, what am I going to do next?'."

Crew guidance

From the beginning, Katie has been very direct with her employees about what it would mean if someone were to become sick with the virus. "This would be detrimental to our business and there is a good chance we would have to shut down for the year." But as Covid cases are still minimal in their county, things on the farm have begun to feel a little more relaxed. Though the messaging and the stakes remain the same, "everyone has just become more complacent now that the initial shock is gone. This is just reality now." With the arrival of high temperatures and a dry spell, mask wearing has decreased. "Primarily, I'm letting it go," Katie says. "Employees still wear them when they're in the trucks together, but we're done transplanting so no one is really working that close together."

However, with crew members beginning to expand their social groups, Katie has instituted a new policy – anyone who has traveled out of the community or who spends time with a larger group of family or friends must wear a mask on the farm for two weeks. "I struggle with this idea of telling people what they can do. And a lot of farmers say I'm being too nice, that they would absolutely tell their employees they couldn't go places. But all that would do is screw up our morale and relationships." So instead, Katie is trying to keep things in perspective. "I've told them, 'You know, you're going to be the reason your coworkers lose their jobs if you bring this

on my farm. I can't tell you what to do, but you have to make the best decision you can and think about everyone else. If you're telling me you can go away and you trust that you can come back and keep these people safe, then that's fine. But if you're unsure, then we need to talk about it.'"

Health and safety training

PrairiErth already had health and hygiene training in place due to the Food Safety Modernization Act (FSMA) requirements and the farm's Good Agricultural Practices (GAP) certification. "The day they start, they're going through the basics of not coming to work when they're sick, when to wash their hands, how to wash their hands." On top of this, though, Katie and Hans developed a written set of Covid-19 guidelines for employees to follow. They're required to review this document on their own, but Katie incorporates follow-up discussion to reinforce the content. "We talk about what symptoms look like, how to communicate that, and that this would be paid time off. So we're trying to encourage them to take that time off if they're not feeling well."

Katie also works visuals into the conversation. For example, early on, rather than just telling employees to stay 6 feet apart, she would say, "This truck bed is 6 feet. If you can't stay a truck bed away from people, then you need to put your mask on." She also reviews things that may be easily overlooked, like how to put a mask on and take it off properly. With 3 crew members who speak Spanish as their first language, this document is also available in Spanish.

Covid-19 plan

PrairiErth Farm has a written Covid-19 plan, and Katie has outlined alternate work arrangements in the event that crew members test positive for the virus or need to quarantine. In addition to Katie and Hans, there are seven employees who live on or near the farm. As long as everyone remains healthy, Katie would look to this group to keep the farm running. "I would ask

them to self-quarantine here, but we could continue to operate the farm together. We would stop the CSA and wholesale deliveries and wouldn't sell product, but we could at least continue to plant and weed and water."

However, an experience early on demonstrated that despite having formal policies and plans in place, responding in real time can be confusing and stressful. One of Katie's employees was experiencing gastrointestinal symptoms and, out of an abundance of caution, a doctor encouraged this person to get tested. At that point, Katie and Hans revisited the guidelines and decided to take no further action beyond having the employee stay home until the test results – which were negative – came back. Though they were following their protocol, Katie emphasizes how anxious she was throughout this experience. "When that happened, we weren't sure what to do. It wasn't super clear, and I didn't want to make the wrong decision when no one thought it was Covid – they were just being cautious."

As she looks ahead to the fall, Katie thinks of the major contribution storage crops make to the farm's overall revenue. "We need a lot of staff to pull those out of the field, and we can't afford to leave them in there." If someone were to get sick during this time, the consequences could be dire. "We probably need to start planning for that now, cause I'm not sure exactly what that would look like. But it would be really bad."

Additional challenges for workers with H-2A visas

Katie and Hans have three employees with H-2A visas. "Early on, we were getting a lot of conflicting information about whether they could come or not. No one knew." Eventually, they were able to welcome these employees to their farm, but not before they completed a two-week quarantine in a mobile home Katie and Hans had rented nearby. "I just can't imagine how scary it must have been for them to come – politically, not just culturally – and then have to deal

with this pandemic. Can you imagine? These guys are so brave." While this experience may be behind them, Katie says these employees face another ongoing challenge: not being able to see their kids and family members who live in nearby states. The farm's strict no-visitor policy is crucial for maintaining health and safety, but it has been especially hard for these employees. Katie has offered to help them set up Skype since in-person visits on the farm aren't possible right now.

Key considerations for health and safety and sanitation practices and policies

- Employees are encouraged to wear masks when within 6 feet of one another, but work is naturally more spread out at this point in the season.
- Lunches and breaks have been staggered to help with distancing.
- Individual crew members are responsible for specific daily sanitation tasks.
- Packing CSA shares into plastic bags instead of wax boxes has been a positive change.

Masks and distancing

Early on, Katie required employees to wear masks when they were within six feet of one another. While many tasks already involved a certain amount of physical distancing, others – like riding on the transplanter – made mask-wearing necessary. The farm's crew leader, greenhouse manager, and farm manager remained extra vigilant, and Katie would often hear them yelling out "Masks!" or "Spread out!" Over time, though this policy has become more relaxed, crew members still tend to put their masks on when they're riding in a vehicle together, and lunches and breaks are still being staggered to help with distancing. As mentioned previously, a new two-week mask policy is now in place for any crew member who travels outside of the community or spends time with a large group of people.

Sanitation

Early on, Katie shared the University of Minnesota Extension's Covid-19 Response Plan Template for Fruit and Vegetable Farms with her employees, asking that they continue to think about whether the farm should consider implementing any additional policies or practices. Sanitation tasks were divided up amongst the crew so that each person was responsible for specific jobs, and several items were cleaned multiple times a day, including the time clock, door handles, the employee kitchen, the bathrooms, and the trucks. A stricter handwashing policy was also put in place. The message to crew members at this earlier stage was straightforward, Katie says. "If you don't follow this policy, we can fire you. That's how seriously I want you to take this." While many of these practices are still broadly in place, Katie mentions that certain things – like the truck door handles – probably aren't being cleaned as frequently. "The hand sanitizer is still in the trucks and by the time clocks and I do see the crew use it, but the strictness of the rules has eased up a bit."

Delivery and pick-up policies

In the past, crew members would pack CSA shares into reusable wax boxes. With health and safety a top priority, Katie has adjusted this practice so that now employees are packing into heavy duty, plastic bags. They're more affordable than the wax boxes, hold an adhesive label, and are gusseted. Being clear, they provide a really pleasing visual, but they also take up less space during delivery. Crew members pack the bags into black bulb crates, and depending on the size of each week's share, three or four bags will fit in each crate. And, because the bulb crates are stackable, the crew can fit twice as many shares in about the same space as a cardboard box. As the farm begins to pack tomatoes and heavier items like sweet corn and melons, Katie thinks they'll need to move up to the larger bag size, though she's still expecting to retain some space

savings. Overall, this change has been so positive it will likely become permanent. And while some members have expressed concern over the use of plastic, Katie points out that the wax boxes aren't recyclable either and has encouraged members to find ways to reuse the bags.

With the growth of PrairiErth Farm's CSA program, more members are visiting the farm to pick up their boxes than in years past. This has been an exciting change, but it has also meant that Katie has had to be very clear in communicating the pickup policy. To minimize risk and overlap, members are assigned to one of the two pickup days to retrieve their shares, and they have between 9:00am and 7:00pm to do so. Rather than head into the packshed, members now go into a separate shed where two refrigerators are keeping their shares cool and where hand sanitizer is prominently displayed for their use upon arrival. Overall, Katie thinks this system has been working well. But what she's really excited about is the opportunity it has created for broader engagement from the surrounding area. "Now, more people in the community can pre-order and I can just put their orders in the fridge for them." Not only does this bring more members out to the farm, but Katie hopes it will lead to higher retention in the years ahead.

Key considerations for communication

- Messaging centers on the farm's ability to provide a healthy, consistent source of food.
- A focus group of members participated in drafting the farm's revised pickup policies.
- Visuals emphasize the importance of maintaining health and safety on and off the farm.
- Messaging must carefully express the rules and guidelines without triggering a political reaction.

Katie sees this as a critical moment for farmers like her. "This is where local food is going to shine. This is why we need this resilient local food system." From the start, PrairiErth Farm's message has been simple: "We've got this taken care of. You don't have to be afraid to

source food from us. You don't have to worry about food running out. And you don't have to worry about going to the stores. We're here to step up and be part of your community." She believes this messaging has not only driven the explosive growth in their CSA, but has also sparked greater interest from their local community. "All of a sudden, people who haven't necessarily cared that we're here want to come to the farm and get their vegetables from us."

As for communicating new policies and practices to customers and CSA members, "In the beginning, it was easy because everyone was afraid and onboard." But as time has passed, Katie says that "things have become political, and I feel like I have to be really careful about the messaging I'm sending out. I don't want to alienate customers." She has addressed this concern in a few creative ways. Early on, a call went out inviting any interested CSA members to participate in a focus group charged with making the pickup process safer. About 15 members responded and ultimately came up with a set of fairly strict guidelines. Katie believes taking a democratic approach helped with buy-in from the larger membership. "Announcing the plan was less me saying, 'This is what we're going to do.' Instead, it was the conclusion the group had come to – not just my idea."

Katie has also incorporated a personal angle in communicating the new guidelines. "I shared pictures of some of the people in our lives that are high-risk. This is our grandma, this is my dad, this is my best friend who is a nurse. This is personal for us, so by cooperating with the guidelines, you're helping us keep these people safe." Meanwhile, to show members the steps the farm is taking to ensure their safety, Katie and Hans have been documenting daily farm tasks with photos. They're being strategic about what they share, however. For instance, employees don't wear gloves when they pack the CSA, and although they're starting with clean hands, some

members might fixate on that point. With these considerations in mind, Katie tries to share photos that document safety without introducing new stress into the conversation.

Key considerations for sales channels

- Growth in the CSA program has been strong, but the "community" aspect has required creativity during the pandemic.
- "Transactional" CSA members may be difficult to retain.
- Decreased sales, higher labor demands, and the absence of a mask requirement have created farmers market challenges.

Community supported agriculture

With so much initial uncertainty about grocery, restaurant, and farmers market sales, expanding their CSA was one way for PrairiErth to make up some of that lost revenue. They grew their program from 165 members to 321 and have a waiting list of nearly 100. Despite this growth, Katie and Hans decided to keep the size of their operation mostly unchanged. "We're not going to suddenly grow more to meet this demand, because we don't know how long it's going to last." However, the expansion of the CSA program did require several internal adjustments. The crew still packs orders one day per week, but Katie pushed the schedule back to allow more time for harvesting, washing, and packing. Though this has been a major shift, the most significant change has been eliminating the market-style share and instead pre-packing every bag on the farm. This adds about two hours to each week's workload, but as Katie sees it, there is a trade-off. "It takes more time to pack the bags, but the pickup is so efficient that I need fewer people working it." In fact, over time, this process has gotten so smooth that Katie now feels comfortable stepping back and letting crew members handle the off-farm pickups. "We

have two people running shares to members' cars and one person making sure the right name is getting checked off the list and keeping things organized."

Though operations are running smoothly, Katie says that at this point, the major disappointment is that members haven't been able to come out to the farm. "That's a really important component of CSA. One of our top goals is to retain as many members as possible, and it's hard to do that when I can't physically shake their hand and talk to them." So instead, she's focusing on social media, working with the farm's CSA Community Manager to send out hand-written thank you postcards, and putting together a few virtual farm tours. While she had floated the idea of offering staggered member tours on Sundays, Katie remained skeptical that she'd have the time to make this work. When crew members shared their discomfort with the idea and the amount of risk it might introduce, she let it go completely.

In addition to the limitations that farmers are now facing when it comes to the "community" aspect of the CSA model, Katie also worries about those would-be members on the farm's very long waiting list. She had hoped that by June they'd have their new systems dial in and be able to welcome some of these members into the fold. But at that point, "Things still felt really overwhelming so we weren't ready. And now with the staffing issues we have, we're just not going to take on any more." Instead, Katie is hoping that she can interest these potential members in the farm's winter CSA share.

While Katie has tried to figure out how to keep these would-be members engaged, she has faced some challenges with current members. "It's funny how many people signed up for the CSA with this sense of urgency and now they don't care. We even had one person ask for their money back." Katie was anticipating this, though. "There is this idea that the CSA is a transaction between money and food." She thinks the stress and fear people were experiencing in

the early days of the pandemic led them to seek out that transactional experience. For these members, being part of a farm was probably an afterthought, if anything. When she thinks about investing in and retaining members who are new to the CSA this year, Katie doesn't consider these customers her top priority.

Farmers markets

Before the Bloomington Farmers Market began allowing walk-up sales, PrairiErth Farm had been participating in its curbside pickup program. Unfortunately, Local Line, the software system the market selected for online orders, was fairly problematic. "There were no minimums in place, so someone could order one watermelon radish for $1 and I'd have to print out the invoice, put it in a bag, and staple it all together. At that point, I haven't made any money." As the market prepared to reopen to foot traffic, Katie was highly optimistic about the new setup. The farm would have control over ordering and minimums, crew members would have more interaction with customers since they'd be answering questions and packing orders, and sales would likely be higher since certain items would be sold in pre-packaged quantities rather than individually.

Since the revamped market has launched, however, Katie has adjusted her expectations. At this point, the farm's records show they're down about 100 customers per market, and the stand's sales are down about 30 percent. However, this figure includes value-added goods Katie would typically sell in the past but has purposely not pushed herself to make this year. Accounting only for vegetable sales puts this number closer to 12 percent, which Katie feels good about. The labor required to comply with the health and safety policies, however, is a major point of concern. "Normally, all of these items – green beans, tomatoes, potatoes – they were never pre-packaged but now they have to be and we just don't have time to do that on the farm.

So now, at the market we're trying to restock, quickly quart up the potatoes, all of that. The labor involved has grown considerably." With sales down, adding more employees to assist isn't a viable option. But at the same time, Katie worries about the customer experience – at her stand, but also more broadly. "There's no live music, no prepared food, no artists – all of the non-farmer things have been removed. It's not an experience anymore for many of them."

However, the most glaring point of contention is the market's mask policy. While vendors must wear a mask, customers are strongly encouraged – but not required – to do so. As a result, many choose to shop without a mask. "I feel like we're putting ourselves at risk by being out there. We're wearing a mask for six hours, and it's hot and uncomfortable. And then you have people four feet in front of you not wearing a mask. It is emotionally taxing to have people not care about you like that." To add to the frustration, Katie says that because of this policy, many of her regular and long-term customers have decided to stay away from the market. "So not only are these people putting me at risk, but they're also limiting my sales because so many people don't feel comfortable coming to the market." While Katie says she could require customers to wear masks at her stand, she feels like that would put her in a really difficult situation. "My regular customers still aren't coming, and now I've just alienated the ones that refuse to wear one."

Key considerations for money management

- A huge influx of cash underscored the importance of careful financial management.
- Diversification in sales and marketing provides a powerful layer of protection.

"The main thing that has been really predominant throughout this whole experience is finances." Even while farmers market sales and restaurant orders dropped off, PrairiErth Farm quickly found itself in a favorable position. As the farm sold through its entire inventory,

demand was so strong that Katie was able to take the highest price from buyers. April sales were up 178 percent from the year before, and CSA deposits continued to flood in. The farm received a Paycheck Protection Program loan that will be forgiven and another Small Business Association loan with the first $10,000 forgiven. “We had this huge influx of cash, and it felt so great.” Katie and Hans made a handful of strategic purchases early on – a larger truck to accommodate the expanded CSA program, a high-pressure wash line to increase efficiency, and a new CSA Community Manager position to streamline member communication and free up some of Katie’s time.

“We were thinking our sales were going to continue to be fantastic, but money ebbs and flows,” and Katie says that things have more or less leveled off by now. “People have calmed down a little in terms of their food purchases, and we missed six or seven markets – that’s a substantial amount of income we lost.” Remaining disciplined with their finances has served them well up to this point, though. The key has been keeping the excitement in check and “not spending more than you absolutely have to, but making the right investments so that you’re efficient.” Katie is also adamant that the farm’s diversification has provided an additional layer of protection during this time. “If we didn’t have the CSA, or the farmers market, or the wholesale in this situation – if one of them was missing – we would be in a lot of trouble. It is our diversity in marketing that has allowed us to stay viable.”

Being strategic with their money management has also allowed the farm to make some big decisions as the season has unfolded. “With our staffing situation, we have pulled back from six very large wholesale customers. Because they’re so big, they require a lot of labor and we just don’t have it right now.” This has helped Katie manage her own stress as well as that of the crew, and while she remains nervous about being able to reestablish these accounts, the farm’s

large storage crop is reassuring. “The only thing we have going for us is that we’re the oddballs in that we have so much to offer in the winter when other farms don’t.”

Key considerations for farmer mental health and well-being

- Finding ways to create or maintain balance between work and life has become even more difficult during the pandemic.
- Having an identity outside of being a farmer is more challenging when it is harder to leave the farm.

Over the winter, Katie made a self-care plan. Yoga, visits to the gym, lunch with friends, dinner in town with Hans – things that took her off the farm and brought some much needed balance to her life. The virus put an abrupt end to these activities, however. “The self-care thing? Really, it’s basic survival now. Like I’m making sure I have plenty of sleep and that I’m drinking plenty of water.” The pandemic has ushered in a new level of stress Katie couldn’t have imagined before. “In the past, it just felt like a normal part of farming – it was manageable. But now it’s just not. Speed bumps have turned into these huge mountains because we have no capacity to handle things anymore. So we’ve been able to narrow in and say ‘I don’t want to feel like this anymore. What can we do to change it?’.” This realization has already resulted in some action, like dropping a few of the farm’s larger wholesale accounts and opting out of October farmers markets. But Katie knows that creating a more sustainable work-life balance and stress load is a long-term process.

At the same time, she’s mindful that “normal life” isn’t likely to return any time soon. Farmer gatherings that she and Hans would look forward to each year are already being moved to virtual platforms, and their close-knit network of fellow farmers isn’t within reach like it once was. “There’s this realization that the only way we’re going to get through this really difficult

time is if we take care of each other. No one else can take care of us right now because they're taking care of themselves."

While her gaze may have broadened for the time being, Katie hasn't lost sight of her own personal goals. "I need to be someone that's not just a farmer. And I've lost my identity outside of farming because I can't leave this place very often, so that's been pretty depressing for me." Acknowledging these feelings of disappointment and frustration, Katie is trying to keep things in perspective. "I just have to find new ways to get off the farm. If I have to drive to the park and go for a walk around the neighborhood, then that's what I need to do. I need to let go of that disappointment that I can't do what I had been doing right now."

Key considerations for looking back and thinking ahead

- The pandemic has ushered in a new era of experimentation and change.
- Investments in process, efficiency, and stress minimization may work to retain both CSA members and farm employees.

For all of its challenges, Katie says the pandemic has served as a catalyst for experimentation and change at the farm level. After 11 years, things had started to feel somewhat stagnant. "Honestly, I was a little bored. It was always the same." That quickly changed, however, as opportunities to shake things up and reinvent parts of the operation continued to emerge. As Katie explains it, the pandemic and its added stressors forced her and Hans to look closely at each marketing stream and ask questions like, "Is this something we want to continue to do? Is this something we want to grow? Does it make sense to do that?" And while this process felt scary and intimidating at first, not only have the end results been encouraging, but Katie says that on more than one occasion she and Hans have stepped back and asked, "Why haven't we been doing this all along?"

Looking ahead, Katie sees many of these new practices playing a role as she works to retain as many CSA members as possible. In the past, it often felt like the labor requirements outweighed the program's financial returns. But Katie says she recognizes that she's looking at "an incredible, potentially once-in-a-lifetime opportunity to keep this many people engaged." She is hopeful that the investments they've made into making the farm more efficient – like the high-pressure wash line, a new van, and the CSA Community Manager position – will not only benefit their members, but will make it easier for the farm to maintain a much larger CSA.

Katie isn't only thinking about keeping her CSA members, though. Although some of her new employees – many of whom lost their jobs in the service industry – have started to look for other opportunities, Katie still hopes to retain as many as possible. "Restaurant and kitchen staff are some of the best farm staff because they know what work ethic is and they know what it is to be uncomfortable and to hustle." Turnover has long been a challenge, but Katie is hopeful that taking a more proactive approach to managing stress and creating a work experience that is as positive as possible will serve as incentive. "I want them to know that we care about them. They're fantastic."

Component #2

The TEAMs program: Supporting the human element of diversified vegetable production

Across the country, small and mid-scale diversified vegetable farms often depend heavily on hired labor (Holt-Giménez, 2016). Yet anecdotally, we know that the policies, practices, and systems that support the human element of farming – what we can broadly refer to as human resources management (HRM) – are not always in place (Semko & Altukhova, 2021). While farm owners may apply certain HRM practices early in the season, like formal interviews and orientations, more complex practices like employee reviews may fall in priority as production demands intensify.

However, considering the labor-intensive nature of vegetable production and the fact that farms often struggle to attract and retain workers, investing in practices and systems that strengthen professionalism, build trust, and foster motivation and autonomy can have a positive impact on the workplace environment and may even improve retention over time. Attiq et al. (2017) describe this as a "supportive work environment", wherein these enabling conditions contribute to a highly functioning organization where workers are empowered to share input and contribute to learning. Meanwhile, writing about the service industry, Wirtz and Jerger (2016) discuss the critical role of frontline workers. While farm employees may have varying contact with consumers, they are similar to frontline workers in that they are deeply involved in the day-to-day work of the farm and ultimately contribute to the broader success of the business.

Farm managers have a critical role to play in creating and maintaining a supportive work environment. Yet through 15 in-depth interviews and an online grower gathering attended by 42 farmworkers from across the country, training in employee management and the skills associated with leading a team of individuals emerged as a top priority. It also became clear that employees'

limited access to formal training opportunities in this area was occasionally serving as a deterrent, preventing some individuals from moving into management-level positions on the farm. During an interview, one farmworker shared, “I struggle with knowing how to lead a crew, and I think that’s why I haven’t taken a management position yet – because it seems so overwhelming” (personal communication, July 28, 2020). Notably, training in employee management also emerged as a top priority in my conversations with farm owners. While many felt great confidence in their role as producers, they tended to feel underprepared – even uncomfortable – in the role of employer.

Having already registered farm owners’ demonstrated needs in this area, I had begun working with Claire Strader (University of Wisconsin-Dane County Extension and FairShare CSA Coalition) and Alexia Kulwiec (School for Workers) in 2019 to modify a pre-existing employee management training program called Becoming the Employer of Choice (BTEC). Originally created by the University of Wisconsin-Extension to serve the state’s dairy farmers, we worked closely with a group of eight farm employers to modify the program in order to create a version that would meet the needs of diversified vegetable growers. The way in which we approached modifying the BTEC program – through deep partnership with farm owners – served as a strong blueprint for attempting to address the needs and interests of current and aspiring farm managers.

Through a 2021 Graduate Student Mini Grant provided by the Center for Integrated Agricultural Systems (CIAS) on UW-Madison’s campus, I began working with four farm managers to create the Training and Education for Aspiring Managers (TEAMs) program. This funding also provided compensation for the time farm managers spent in meetings and on training delivery. The original training team consisted of myself and the following individuals:

Abby Benson at Featherstone Farm in Minnesota, Jason Halm at Green Earth Harvest in Illinois, Taylar Foster at Troy Farm in Wisconsin, and Kim Sowinski at McHenry County College in Illinois. Through earlier discussions, farm employees had already identified four key topics they wanted to engage with: leadership, communication, feedback, and conflict resolution. During the first of several working meetings, our core team ground-truthed these priority topics, setting the stage for the work ahead.

Our goal for the TEAMs program was to create four sessions, each two hours long, grounded in research, and heavy with industry-specific examples and discussion. Just as with BTEC, peer-to-peer connection is at the center of the TEAMs program. By bringing supportive content to the program but also recognizing farmers as the experts, this peer-to-peer approach allows us to harness the knowledge, skills, and experiences that farmers bring with them to these discussions (Sutherland & Marchand, 2021). After all, farmers tend to learn the most from one another (Garforth et al., 2003).

At our second working meeting, the farm managers provided extensive guidance on what our leadership session should cover. From there, I created a draft of the session, presented it at our next meeting, and continued to gather and incorporate feedback. We repeated this process for each topic until we had final versions of the following four sessions: Farm Managers as Leaders, Communication and Delegation, Delivering and Receiving Feedback, and Recognizing and Addressing Conflict.

We promoted the TEAMs program through outreach to individual employees and farm owners and to farmer-serving organizations like Not Our Farm, CIAS, FairShare CSA Coalition, and Marbleseed. Then, in March of 2022, we delivered the TEAMs program to the public at no cost. Each Wednesday of the month, one of the farm managers and I co-delivered sessions over

Zoom. Having the farm managers as a core part of the training team for each session helped us keep peer-to-peer learning and discussion at the center of this work. While several farm owners expressed an interest in attending the TEAMs training, I redirected them to the BTEC program in an effort to ensure that farm employees felt as comfortable as possible engaging in session discussions.

Overall, 186 individuals registered for TEAMs. An average of 53 participants joined each session, representing 27 states and 3 countries. Additionally, 73 percent of attendees had most recently served in a farm management role; 80 percent of attendees identified as white; 8 percent of attendees identified as Hispanic or Latinx; and 9 percent of attendees identified as non-binary or gender non-conforming.

The feedback provided after each session was both encouraging and constructive, reinforcing the belief that there is a real need for this type of training while also helping us identify opportunities to continue strengthening each session. As one TEAMs participant shared, "This is such a necessary program for farm managers. I've been to a bunch of sessions on how to run a farm, but it's never about how to relate to your crew on an emotional level and in a way that makes people feel good and makes people good farmers" (personal communication, March 24, 2022). Moving forward, we have primarily focused program improvements on bringing more concrete examples into each session and incorporating even more large and small-group discussion opportunities.

Following our March delivery, California-based Center for Land-based Learning (CLBL) invited our team to deliver the program to their apprentices during the summer of 2022. Feedback has reinforced the value of the program content and the role it can play in supporting current and aspiring farm managers. "I really enjoy the directness of these sessions," one

participant shared during delivery. “We don’t shy away from topics that may be difficult or uncomfortable, and I really appreciate that.” This additional delivery allowed us to continue adjusting sessions based on participant feedback. Through recommendations offered by Anita Adalja, a close collaborator and the founder of Not Our Farm, we have also able to bring on three additional farm manager co-trainers: Kaitie Cosmos based in California, Rue Policastro based in Maryland, and Katie Willis based in Alabama.

Since our work to create the TEAMs program began, farm employees have continued to emphasize their desire for this type of support, often drawing connections between their access to training and leadership opportunities and their broader efforts to build a long-term career in diversified vegetable production. For instance, based on a survey my colleagues and I launched through FairShare in 2022 that drew 149 responses from farmworkers across the country, 70 percent of respondents said that employee management training would help them advance their careers in this industry.

Moving forward, we plan to deliver the TEAMs program each spring. A few of my short and longer term goals for this program include incorporating language justice considerations, including offering simultaneous interpretation into another language based on participants’ needs; serving a more racially and ethnically diverse audience; building a more diverse training team, especially along the lines of racial and ethnic identity, gender identity, and age – as relationships allow; and creating new content as needed, especially as we reach a more diverse audience whose needs and priorities may differ from those currently addressed.

Ultimately, I see this work as contributing to a larger effort to create long-term career pathways for non-owners in diversified vegetable production. In my conversations with farm employees, things like respect, two-way communication, proactive conflict resolution, and

opportunities for growth matter a great deal. So too does the emotional intelligence of their manager and employer. Supporting and empowering farm managers who work closely with employees is therefore a key opportunity to ensure these needs are more likely to be met.

It is clear that farmers who have attended TEAMs already have a wealth of knowledge and experience. This program aims to provide additional foundational support, along with the opportunity for people to learn from one another, expand their skills, and ultimately bolster their confidence. One past TEAMs participant recently shared her experience, offering:

> I am so grateful to the TEAMs program because it gave me confidence in the leadership skills I already had, taught me new tools for handling conflicts, and gave me common language to use with our Assistant Farm Manager. Our Assistant Farm Manager and I learned what each other's management styles were, how we like to make decisions, and how we handle conflict. Since the training, our team has run smoother, we are able to understand and respect each other's styles, and we can better lean on each other's strengths (personal communication, March 21, 2023).

As farm managers lead by example, employees may have opportunities to build their own skills and confidence in these areas, potentially opening the door to future management opportunities. Given the strong interest among farm employees to continue farming into the future, addressing these needs – in part, through this TEAMs program – has the potential to positively impact the industry (Janes Ugoretz et al., 2023).

This work is also deeply rooted in concern for the social sustainability of farming. People are at the center of this work, and there is a need to acknowledge this directly and to invest in their well-being. This is something that the Coalition of Immokalee Workers has been advancing for decades – through their Fair Food Program, their worker-to-worker educational programs,

and their broader efforts to advance social protections for agricultural workers (Marquis, 2017). With its peer-to-peer structure, the TEAMs program aims to address and support the human experience within this industry while placing workers at the center. TEAMs program slides are included with this dissertation in the form of a supplemental file.

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Component #3

Farming into the future by centering farmworkers: A deep dive into what diversified vegetable farm employees value in a workplace

This farmer-informed resource is co-authored by myself, Anita Adalja (Not Our Farm and Ashokra Farm), and Rue Policastro (Owl's Nest Farm). In keeping with this dissertation's applied scholarship portfolio approach, I created this component to be public-facing and interactive. In order to preserve its intentional and interactive design, I have included *Farming into the future* in its official format as a supplemental file rather than in the boy of this dissertation. References are included both in the full resource and below.

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Component #4

Skilling and scaling agroecology: A case study from the US

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Abstract

Farming is a skilled profession learned through experience, expert training, and mentoring. Agricultural workers bring their full abilities to the farm, co-innovating with farmers on a daily and seasonal basis. Throughout the world, the waged agricultural workforce shares a need with smallholder farmers for many of the same training skills in order to engage with and apply agroecological production at the local level. In the United States, the operation of diversified vegetable farms – which are sometimes producing more than 50 different crops each season – is often made possible because of agricultural workers who apply their skills to manage complex farming systems and support seasonal crews. To support the development of this workforce, FairShare CSA Coalition collaborated with organic vegetable farmers, the University of Wisconsin-Extension, the Wisconsin Bureau of Apprenticeship Standards, and the Wisconsin Technical College System to create a farm manager apprenticeship program that could be federally certified by the US Department of Labor. The process and subsequent apprenticeship program identified competencies that workers utilize to manage a diversified, organic farming system. In this case study, we provide a framework for practices and skills that workers can use to support a just transition from conventional farms to agroecological food systems throughout the world and at any scale of agriculture.

Literature review

Agroecology combines Indigenous and practitioner wisdom with social and ecological principles for the design and management of sustainable agroecosystems (Gliessman, 2015). It is at once a science, a movement, and a practice, existing within a specific ecosystem and culture (Figueroa-Helland et al., 2018; Wezel et al., 2014). As a framework, agroecology offers a third way – a middle ground between agricultural production and the various trade-offs we have become accustomed to seeing and accepting (Altieri & Nicholls, 2020). By considering the biophysical and the socio-economic constraints of production, agroecology presents a different set of criteria for evaluating agricultural systems (Tittonell et al., 2020).

One of those criteria is the ability of a system to adapt – which is especially crucial as farmers experience the impacts of global-scale challenges like climate change and supply chain disruptions at the farm level. As Woods (2019, 2018) explains, agroecological systems can build their adaptive capacity over time through a combination of individual and cooperative efforts. For instance, using peer support methods to empower farmers to adopt low-till methods and incorporate green manure into organic vegetable production systems can enhance soil health and nutrient recycling and minimize erosion and run-off, while keeping food production localized (Practical Farmers of Iowa, 2022).

As the impacts of industrial-style agriculture continue to intensify across the world, calls for a just transition away from conventional production are accelerating (Figueroa-Helland et al., 2018; IPES-Food, 2018). Within this discourse, the convergence of agroecological and organic methods presents an especially promising path towards a more sustainable and just food system – one that is better equipped to protect biological and cultural diversity, support climate change adaptation, uphold and advance social justice, and meet global food supply needs (Brzozowski &

Mazourek, 2018; IPES-Food, 2018; Migliorini & Wezel, 2017). As Lowe and Fochesatto (2023, p. 7) further explain, this just transition "would enable those who work in agriculture and food systems to regain control over agricultural land, markets, and institutions; address inequities in the distribution of power and resources; and support healthy environments, communities, and livelihoods."

Of particular importance in this space is the question of power and the role of the agricultural worker (Hurst et al., 2007). While social dimensions remain a core part of the philosophy underpinning organic production, the codification of organic standards in the United States remains focused on allowable and prohibited inputs (Obach, 2017; Guthman, 2014). As a number of scholars, practitioners, and activists have noted, these standards – paired with a combination of legislation, policy, and practice – have served to create a largely vulnerable and often invisible agricultural workforce (Myers & Sbicca, 2015; Alkon, 2014; Gray, 2013; Holmes, 2013; Brown & Getz, 2008). Instead of recognizing the value and necessity of a "knowledge-*able*" agricultural workforce, we more often see efforts to de-skill and disempower that workforce (Carlisle et al., 2019).

Because practitioners apply agroecology at the local level, its functioning is dependent upon observations, predictions, and experiments – and agricultural workers have a huge role to play in developing what Carlisle et al. (2019) call a "place-based acumen." The co-creation and free-flow of place-based knowledge that is paramount within agroecological systems is influenced by relationships, yet in the US, the traditional employer-employee relationship is often dependent upon asymmetrical power dynamics (Ferguson et al., 2019; Haugaard, 2003). For a just agroecological transition to be possible, we need a power shift that will create space for more equitable participation in knowledge co-creation and decision-making (IPES-Food,

2018). In addition to engaging with agricultural workers in these ways, farm owners and managers must also become employers of choice – building the managerial and leadership skills that will help them engage with and support a robust agricultural workforce as they scale agroecology on their farms. Prioritizing this not only supports the agency of agricultural workers, but it also helps establish the systems, policies, and practices that cultivate a more just work environment (Janes Ugoretz, 2021).

We know that agroecology in practice looks different from place to place, and as such, we should not cling to an inflexible set of standards (Migliorini & Wezel, 2017). Yet as we think about agroecology's role within a broader just transition, presenting a set of locally adaptable principles can provide farmers with information that will assist them as they learn how to "do agroecology" (Carlisle et al., 2019). As agroecology has moved into the mainstream discourse, organized efforts to teach these principles have increased. While some of this work happens informally through mentorships, peer networks, or amongst family members laboring together, more structured approaches often take the form of training programs administered through field schools, apprenticeships, and extension programs.

Calo (2018) encourages us to explore how knowledge is defined and valued within these programs. Perhaps the most commonly used model is one that keeps beginning and transitioning farmers in the "non-expert" role – treating them as passive recipients of knowledge and failing to recognize the knowledge and skills they already possess. In place of this knowledge deficit model, Calo encourages the use of more democratized epistemologies that challenge the privilege of knowledge and the expert-lay divide, like participatory agricultural extension and farmer-to-farmer knowledge production (Sutherland & Marchand, 2021; Calo, 2018; IPES-Food, 2018). The participatory approach that is engrained in the programs we consider below

encourages farmers to bring their skills, knowledge, and experiences as they learn from one another and create knowledge together. Yet we also acknowledge that significant critiques still apply, especially in relation to the assumptions associated with competency-based educational programs and their failure to confront inequities and instead preserve the status quo (Kerka, 1998; Auerbach, 1986; Roberts, 1986).

Conceptual framework

This case study shares the work of organic farmers and their strategic partners to define core competencies that support agricultural workers' active participation in just agroecological transformation. Agroecology requires "process intensification" where human effort and knowledge is necessary to manage landscape complexity, diversity, synergies, natural regulation, and ecosystem services. Yet there is also an undeniable human element to this work, a discussion we take up by exploring two peer-to-peer labor management training programs – Becoming the Employer of Choice and Training and Education for Aspiring Managers. These programs assist diversified vegetable farmers in building their management and leadership skills within the broader agroecological context, while centering peer-to-peer learning. In sharing this case, we aim to provide a bridge that larger scale producers engaging in just agroecological transitions may use to identify their needs and inform their efforts.

On the international stage, efforts to support just agroecological transitions have been gaining momentum. In 2011, the UN Special Rapporteur on the Right to Food pointed to agroecology as a powerful tool for addressing many of the global challenges we now face (De Schutter, 2011). Shortly thereafter, at its 2016 Congress, the members of the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF) resolved to advance agroecology as a means of protecting agricultural workers and

promoting food security (IUF, 2016). And in 2018, the UN Food and Agriculture Organization (FAO) pointed to agroecology as a key driver for transitioning towards more sustainable food and farming systems (FAO, 2018). These commitments prompted questions around how to support training and provide professional development for waged agricultural workers operating in systems that are transitioning from commercial plantations to agroecological production.

As these discussions advance, there is growing consensus that agroecology must be based on the recognition and application of human rights, including labor rights for all workers, regardless of their employment or citizenship status. The 2019 agroecology report of the High Level Panel of Experts on Food Security and Nutrition (HLPE) of the UN Committee on World Food Security and Nutrition (CFS) states that its approach to agroecology must, "Start from the recognition of human rights as the general basis for ensuring sustainable food systems and achieving food security and nutrition for all, now and in the future*"* (p. 27). This includes the recognition and application of fundamental labor rights as human rights.

Around the same time, a group of smaller scale organic vegetable farm owners and their strategic partners came together in Wisconsin. Their goal? To create the nation's first registered apprenticeship for organic vegetable production, spurred by a growing number of requests from organic growers across the region. In practice, the Organic Vegetable Farm Manager Apprenticeship (OVFMA) would support the development of a highly capable pool of farm managers through shared, on-farm learning and training. This effort was partially inspired by the Dairy Grazing Apprenticeship, which was initiated by farmers in the Wisconsin grazing community to build skills in a perennial production system.

The core competencies articulated in the OVFMA ground agroecological principles in actionable duties and tasks that benefit the apprentice and the farm owner, while contributing to

broader social sustainability goals. Although organic production as it has been codified in the US may not meet the diversity criteria central to agroecology, this program remains focused on smaller scale, highly diversified production systems and is paired with support that centers social considerations – like two-way communication, progressive wages, and shared decision-making.

The agroecology community articulates 13 agroecological principles, which we matched to the OVFMA's core competencies (Wezel et al., 2020). Nine principles relate directly to requirements for organic farm certification, although a farm need not be organically certified to be organized on these principles. And while not part of organic certification, the tenth principle listed below – diversified markets – is a core risk-smoothing strategy that many farmers use in a market economy that is increasingly beset by climatic, economic, and political disruptions (King et al., 2022). Broadly taken, these principles aim to increase complexity so that farms more closely mimic natural ecologies and build their adaptive capacity over time. They include:

1. Biodiversity. The farm maintains and enhances genetic, species, and functional diversity at multiple scales, including within the field and at the farm and landscape levels.
2. Synergy. An agroecological environment that supports the integration, complementarity, and interaction amongst plants, animals, soil, and water leads to emergent and dynamic relationships. These relationships support production and various ecosystem services.
3. Soil health. This is the basis of healthy plants. Managing organic matter and creating conditions for robust soil biological activity is key in agroecological systems.
4. Recycling. Nutrients and biomass are kept within the system as much as possible, thereby lowering environmental and economic costs.

5. Animal health. Animals are an integral part of any natural system for nutrient recycling and managing plants. Integrating both wildlife and domesticated animals into the farming system is a high priority, as is their health and welfare.
6. Input reduction. Natural systems are endogenous, making use of the materials at hand. Reducing and eliminating inputs like fertilizers and water is possible through recycling and integrating animals into the system.
7. Co-creation of knowledge. Knowledge is shared through farmer-to-farmer exchange and at the farm level between employees. This bolsters local and scientific innovation and builds adaptive capacity. Continual improvement, a core value in organic agriculture, is based on the co-creation of knowledge.
8. Fairness. All food system actors – including farm owners, farm managers, and agricultural workers – deserve dignified and robust livelihoods. Fair trade, fair employment, and fair treatment of intellectual property rights are central to achieving this principle.
9. Participation. Social organization that supports local adaptive management of agriculture and food systems emerges from the co-creation of knowledge and fairness in the system. In the US, the National Organic Standards Board exemplifies this principle at the federal level. One key consideration, however, is how power asymmetries shape equitable participation.
10. Diverse markets. Farm owners and workers fare best when they participate in several markets for their products. As produce becomes more diversified, so too must the farm's marketing strategy.

Three additional principles – food systems equity, food supply chain governance, and land and natural resource governance – reach beyond the farm level to address how farm owners and agricultural workers relate to their communities and markets. These three principles point to the necessary policy context for tradeoff negotiations, just transitions, and conditions of decent work. Yet for the purposes of this paper, we explore how 10 agroecological principles pair with 13 job competencies identified by a Midwest US organic farming community to prepare and empower agricultural workers to participate in organic vegetable farm management more fully.

Methods

To understand how practitioners apply agroecological principles at the farm level, we link them to the competencies outlined under the Organic Vegetable Farm Manager Apprenticeship (OVFMA). Claire Strader of Dane County UW-Extension and FairShare CSA Coalition, along with Julie Dawson of the University of Wisconsin-Madison (UW Madison), organized practitioner meetings so that organic farmers, agricultural educators, and representatives from the State of Wisconsin Department of Workforce Development (DWD) could collaborate to develop a program that would meet farm employers' need for skilled agricultural workers, while also connecting agricultural workers with comprehensive professional training to support their management of complex farming operations (Livingston et al., 2018). A core goal of the OVFMA is to create long-term, management-level careers for organic vegetable agricultural workers. Thirteen farm owners, 8 agricultural educators, and 2 representatives from DWD attended the first and several subsequent meetings over the course of 2 years. All participants were actively involved in organic vegetable production – either as farmers or as professionals working in close partnership with farmers.

On-the-job learning is the most substantial component of the OVFMA, representing 90 percent of the program's curriculum, while the remaining 10 percent is focused on classroom learning. There is no fee to participate in the apprenticeship program. Instead, apprentices are compensated at an hourly rate by their farmer educator for the time spent on training – both on the farm and in the classroom. Meanwhile, a Job Book outlines learning expectations which are organized by the program's 13 core competencies. Each competency is broken down into greater detail, through associated tasks and steps. The Job Book functions as both a workbook and a checklist, in that both farmer educators and apprentices are recording notes, planning workflows, flagging questions, tracking progress on core competencies and skills development, and eventually marking training areas as satisfied.

The Job Book was developed using a process called Designing a Curriculum, or DACUM (Norton, 1998). A working group gathered information from high-performers within the diversified organic farming community, known as subject matter experts. Twelve subject matter experts with extensive on-farm experience worked with a university and extension team to unpack the essential tasks of their profession. All decision making was accomplished through a consensus process. Farm owners brainstormed tasks and then organized them into similar groupings. In this way, farm owners discussed common activities and identified the core program competencies. Their findings were validated through an online survey sent to organic vegetable farmers, Extension educators, and agricultural non-profit organizations from the same geographic region. Survey respondents evaluated the frequency and criticality of each task as a way to determine their overall importance. This process also helped identify information that may have been overlooked up to that point (Livingston et al., 2018).

Upon finalizing the OVFMA's competencies and tasks, the subject matter experts then sought to determine how these skills were best learned – on the farm, in the classroom, or both. They decided to follow a competency-based model, as opposed to a time-based model. Doing so offers farmer educators greater flexibility in recognizing the skills and knowledge that apprentices bring with them to the program.

The next process in creating the Job Book was to detail each task with steps. Julie Dawson and Valerie Dantoin, an organic farmer and agricultural instructor with the Wisconsin Technical College System, worked with farmers and other educators to draft this next step of the curriculum. Ultimately, they developed three classes to complement apprentices' on-the-job learning: Organic Farm Systems, Farm and Business Management and Marketing, and Production Related Farm Management. The first, Organic Farm Systems, focuses on organic and systems-level approaches to vegetable production, planning rotations, fertility, and field management. Farm and Business Management and Marketing focuses on farm recordkeeping, financial management, and marketing strategies. The last course, Production Related Farm Management, explores greenhouse management, plant health indicators, irrigation methods, and food safety. Because apprentices are working on farms throughout the state, all classes are delivered online through the Northeast Wisconsin Technical College. Farm owners approved the Job Book and certification program in December 2017, and the Wisconsin Department of Workforce Development approved the program in June 2018.

We sorted the duties and tasks as outlined in the Job Book according to project management categories of planning, assessment, monitoring, and execution. From there, we further organized tasks based on 10 farm-level agroecology principles.

Key findings

The apprenticeship process is human-centered and recognizes farm employers, managers, and agricultural workers as subject matter experts. The Job Book development and its implementation on the farm remains a collaborative and continual process of improvement where farming knowledge is co-produced. Centering the Job Book during regular check-ins between farmer educators and apprentices spurs additional questions and discussions, informs future work plans, and encourages active reflection on practices that may not yet be captured in the document. Notes that are preserved in the Job Book also help inform the larger structure of the program by highlighting things like: when training on certain tasks tends to take place in year one and year two; which areas of training might take more time and investment; and how production practices might be changing in response to external factors like climate change and market trends. This level of knowledge co-creation – between OVFMA participants and the program manager – also ensures that the program remains agile, able to support participants' needs and to reflect the reality of the environment within which farms are operating.

Agroecological principles are organized according to ecosystem functions, while the Job Book is organized according to competencies, tasks, and steps. We organized Job Book tasks by project management categories of planning, assessment, monitoring, and execution. Matching agroecological principles with project management competencies specific to an organic vegetable farm is provided in Table One. A total of 111 tasks are described in the Job Book. Execution of specific farming tasks comprised 70 percent of the total tasks described. We might consider these tasks to encompass the craft of farming. Project management skills are conceptual and make up the remaining 30 percent of tasks in the Job Book: planning at 13 percent, assessment at 11 percent, and monitoring at 6 percent. These percentages do not necessarily

reflect the time to complete these tasks, however. Monitoring is ongoing and may be tailored to specific tasks or planning objectives. Several tasks addressed two or more of the agroecology principles. The intersection of principles with project management competencies may be underdeveloped in some areas and could be added to the training materials in the future. Assessing and monitoring categories were weak on the principles of recycling, knowledge co-creation, and participation.

Table 1

Matching agroecology principles to OVFMA competencies

Agroecology Principle	**Core on-farm competencies for apprentices on organic vegetable farms**		
	Planning	**Assessment**	**Monitoring**
Biodiversity	Plan field and bed layout; Plan crop rotations	Field conditions; Weather conditions; Crops and service crops performance	Record seeding and planting; Record crop harvest
Synergy	Project yield; Crops and service crops performance	Germination; Growth; Harvest timing	
Soil Health	Conduct soil tests; Create soil fertility plan	Weed pressure; Identify weeds; Determine weeding method	Troubleshoot plant performance; Record crop maintenance activity; Evaluate efficacy of control method; Record control treatment
Recycling	Plan crop rotations		
Animal health (including wildlife)		Assess pest and disease pressure (potential or actual); Identify pests and disease; Determine control method	Record crop maintenance activity; Evaluate efficacy of control method; Record control treatment
Input reduction	Order seeds and supplies		Record crop maintenance activity; Evaluate efficacy of control method; Record control treatment

Agroecology Principle	**Core on-farm competencies for apprentices on organic vegetable farms**		
	Planning	**Assessment**	**Monitoring**
Knowledge co-creation	Create planting schedule		
Fairness	Determine labor needs; Develop job descriptions; Establish operating procedures; Create employee schedules	Assess employee performance	Maintain employee records
Participation	Maintain organic certification		
Diverse markets	Develop marketing plan; Plan marketing events		Record crop harvest

Discussion

Skilling agroecology is an ongoing process – one where broader principles can guide choices at the farm level, but that ultimately looks different from place to place. This approach is at the core of the OVFMA program. Apprentices and their farmer educators are engaged in a continual process of communication, learning, and knowledge creation. The Job Book is a concrete tool that guides on-the-job training, but its impact deepens when farmer educators and apprentices use it to foster engagement beyond its pages – to prompt questions and spark discussion. As one farmer educator recently shared, “When my apprentice asks me questions, I usually need to think about why I do things the way I do them because I’m so used to operating on autopilot. It takes time and thought to put my years of experience and instinct into words and an action plan, but I know it’s making me a better farmer. And it means that together, we have more knowledge to bring to this work.”

Incorporating formal and informal interactions and information-sharing between program participants and program partners also ensures that the structure of the program and its competencies and tasks can evolve as needed. Given how acutely certain climatic changes are

being felt, this flexibility is especially important as farmers' adaptation strategies may change over time. For instance, the Job Book does not explicitly include low-till production at this point, yet this is a practice that farmers are exploring at an increasing rate.

At the farm level, regular check-ins between farmer educators and apprentices – a core component of the OVFMA – have benefits that extend beyond the program participants. As one apprentice reflected, "A lot of times when I ask questions, we'll usually talk through them at our team meeting because other crew members are also interested in and value learning about some of these things." In this way, the program is supporting broader participation in knowledge co-creation and skill-building at the farm-level.

This free-flow of information has also been crucial for identifying additional support farmer educators and apprentices require outside of the formal bounds of the program. One such need centers on human resource management and supporting healthy employer-employee relationships on the farm. Organic and agroecological systems tend to be more labor-intensive, and while farmers often come to this work with extensive production expertise, they may lack the confidence and past experience that can serve them as employers and managers (Janes Ugoretz, 2021). To address this, FairShare CSA Coalition – in partnership with farmers and UW Extension – created two peer-to-peer labor management training programs. Becoming the Employer of Choice (BTEC) serves farm employers, while Training and Education for Aspiring Managers (TEAMs) supports farm employees who aim to move into formal management positions. Both programs were co-created with a group of farm employers and farm managers who also serve on the training team. Centering farmer involvement supports a key goal of these programs: peer-to-peer discussion and learning. As Garforth et al. (2003) remind us, farmers tend to learn the most from one another.

While the core content varies, both programs share a common goal of supporting professional work environments that are built on fairness and respect and that foster open communication and a vibrant and safe farm culture. Ultimately, people are at the center of this work, and there is a need to acknowledge this directly and to invest in their well-being and professional development. This is something that the Coalition of Immokalee Workers has been advancing for decades through their Fair Food Program, their worker-to-worker educational programs, and their broader efforts to advance social protections for agricultural workers (Marquis, 2017). With their peer-to-peer structure and support for social sustainability, the BTEC and TEAMs programs aim to bolster the human experience within this industry while placing agricultural workers at the center. As one TEAMs participant noted, "I feel like this is such a necessary workshop for farm managers. I've been to a bunch of sessions on how to run a farm, and a lot of times it's about how to actually run a farm and be a manager, but not about how to relate to your crew on an emotional level and in a way that makes people feel good and that makes people good farmers."

Providing a bridge for larger-scale operations

A core goal of this paper is to share the ways in which smaller scale diversified vegetable growers have put agroecology into practice on their farms, with the intention of supporting larger scale, conventional and plantation growers in adopting and applying agroecological practices to their own operations. Agroecology can be adopted and applied at any scale of farm, although in a just transition, systems that are very large and highly simplified may need to renegotiate a greater number of trade-offs than smaller, more diversified farms. Despite these hurdles, there are steps farm owners and managers can take to counteract concentration and support an agroecological

transition. Tittonel and colleagues (2020) identify several areas where farmers managing large-scale operations may want to begin with their efforts to diversify.

The first is to learn about and use multifunctional *service crops* in their production systems. This includes cover crops to hold soil in place after cash crops are harvested, green manures to add biomass and nutrients to the system, and trap crops to draw pests away from cash crops – among others. Integrating service crops is a first and necessary step that adds diversity to an over-simplified system, regulates and supports ecosystem services, and increases resilience during disruptions.

Larger farming operations may also consider *integrating animals* into their systems. Also called "arthropod-mediated ecosystem services," introducing animals can add to or support existing wildlife – such as through biological pest control or pollination services. This step often requires providing habitat – like hedgerows or flower strips – to support desirable species, reduced and targeted use of pesticides, and the restoration of natural areas adjacent to crops. Farmers raising livestock may consider grass-based livestock systems. By focusing on two management areas – grass management and herd breeding – farmers support increased species and economic diversity within their systems (Penn, 2022).

The third key task for large operators is to *participate in watershed regulation and soil conservation activities.* Monitoring water quality, quantity, and soil erosion at the farm and landscape levels is a critical task. Scenario planning, where disruptions to the current farming system may be considered in advance, make it possible to avoid unwelcome consequences. These activities require employee training and participation in knowledge co-creation, especially when findings from individual farms are considered in a watershed or other landscape context.

Another similar task is to monitor biodiversity on the farm and at the landscape level and plan for optimal ecosystem services.

Engaging in these activities can assist farm owners, managers, and agricultural workers in their efforts to integrate several agroecological principles into their operations. And while it is clear that all individuals who are involved in the farm operation can play a role in these processes, it is important to further examine the social and relational dynamics that exist at the farm level. Exploring questions like those below can help identify opportunities to increase participation.

- How is information learned, shared, and communicated? Do these systems accommodate varying levels of literacy?
- What role do agricultural workers play in the farm operation? What value do they contribute? How is that value recognized and supported?
- What do power dynamics look like within the farm operation? Do agricultural workers have regular opportunities to share observations and detailed field experiences?
- What systems and practices are in place to support the social dimensions of agroecological production?

Close collaboration, grounded in the principle of fairness and respect, is at the core of just agroecological transitions.

Conclusion and further work

As we continue to experience the many ways in which industrial-style agriculture is at odds with a sustainable future, agroecology has become a rallying point – a way forward, grounded in place-based knowledge and the free flow of information. Here, we present a case

study that illustrates one way in which farm employers, managers, and agricultural workers are collaborating to skill and scale agroecological principles at the farm level.

Just as we are continually learning how to best support this work through the structure of the OVFMA, we are ever aware of the many entrenched challenges that persist and the larger environment within which agroecological production operates. Within the US context, the agricultural industry has been built upon settler colonialism and land theft (Sbicca, 2018). And today, agricultural workers remain largely excluded from many commonplace worker protections due to the industry's historic positioning as exceptional and deserving of special state and civil society support (Weiler et al., 2016; Gray, 2013; Getz et al., 2008). Ultimately, low wages, limited benefits, and horizontal management structures make it difficult for agricultural workers to pursue sustainable, long-term career pathways in this industry outside of ownership (Janes Ugoretz et al., 2023; Ackoff et al., 2022).

A recent survey of agricultural workers employed on smaller scale diversified vegetable farms across the US found that 52 percent of respondents had a second job to supplement their farm earnings and that 1 in 4 received some form of public benefit from the state. Despite these and many other challenges, over 60 percent of respondents still intend to be working in agriculture 5 years from now (Janes Ugoretz et al., 2023). Given the many structural barriers to profitability that exist within our capitalist system, it is clear that the question of fair compensation – and thus, fairly structured agricultural markets – must be included as a core part of this broader transition.

Increasingly, agroecology has come to be recognized as a framework that encourages us to rethink what is and explore what can be. To learn, to redesign, and to transition to something more sustainable, more just, more fair. As we continue this effort, we must ensure that the social

well-being of all who labor is not minimized and is instead emphasized as a core requirement of this work.

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Conclusion

"I've heard a lot of people say that they're addicted to farming. They know it's not going to financially support them, but they can't stop. And I feel the same way. I've been doing this for 16 years, and I don't know what my life would look like without farming. I don't want to know." Many of my interactions with farm employees over the last few years seem to echo this sentiment, shared by Katie – an Alabama-based farmworker and co-trainer on the TEAMs program. People are drawn to farming for a number of reasons. They're drawn to the land, to the challenges of this work, and to the community it builds. They're also drawn to the idea of creating something different that pushes back on our preconceived notions of who a farmer is and what a farmer's life needs to look like. But there is no denying that this path is not without sacrifice. The overarching question guiding this work asks: Is farmworking a viable career, or is it something people do until they can no longer afford that sacrifice?

Through this dissertation, I have attempted to engage with this question in concrete ways that address the wants and needs farmers have shared with me. In many ways, this work began during my earliest interviews with farm owners who were highlighting the struggles they were experiencing as a consequence of low labor retention rates. They were drawing direct connections between their farm crews and the long-term sustainability of their farm businesses, while simultaneously asking what they could do to change this. What could they do to create a workplace that employees would continue coming back to? My conversations with Katie and David during the creation of the farmer case studies went deeper. Their experiences amplified the many ways in which farms depend upon employees *and* struggle to support them in ways that can turn farmworking into a long-term career option.

As I began talking with farm employees, it quickly became clear that many experienced workers were hesitant to take on formal management roles on the farm. Being responsible for

production tasks while also supporting their coworkers felt overwhelming, and many worried they did not have the skills that would ultimately help them succeed in this work. By creating the TEAMs program, we sought to provide practical and actionable information while creating space for farmworkers to bring all of their own experiences and skills to the discussion for even deeper peer-to-peer learning. Looking ahead, our training team is excited to continue to provide worker support following our formal 2023 program delivery. One specific example of this work includes hosting quarterly drop-in meetings where past TEAMs participants can continue to connect with one another – sharing celebrations as well as ongoing challenges. Continuing to learn about workers' evolving needs will inform my own future work in this space.

Any ongoing work will likely make its way into our *Farming into the future* resource, which we are treating as a living document in order to make it as nimble and valuable as possible. Farm owners asked what they could do to retain employees, and this resource is a direct response to that. In partnership with my co-authors Anita and Rue, we took a mountain of data that farmworkers from across the country shared with us, and we attempted to turn that data into multiple points of action for farm owners to consider based on their own circumstances and priorities. Given the power differentials that exist between owners and workers, the emotional labor that Anita and Rue invested in this work was significant. And while the target audience is farm owners, we took care not to "bubble wrap" this in a way that would minimize the very real challenges many farmworkers are experiencing. Instead, we sought to engage the pain points and the discomfort head-on in an effort to move this work forward in real and authentic ways. In May of 2023, our team will put this resource out into the world, meeting with small groups of farmworkers, farm owners, and farmer educators in order to hear their reactions, questions, and ideas. Heading into the fall and winter, we hope to establish peer learning groups where farm

owners engage with this resource and dig deeper into each topical area. Though we are not yet sure of the details, we are excited about what we might build off of this resource.

Finally, a common thread linking this entire dissertation is the invaluable skill that employees bring to their work and the crucial role farm owners play in recognizing and nurturing that skill to the benefit of all – workers, owners, and farms. So often, farming and other labor-intensive industries are described and viewed as unskilled (Dey & Loewenstein, 2019). Along with my co-authors, I take this up in the final component of this dissertation, contesting and directly pushing back on this assumption. As Jesse, an Illinois-based farmer emphasizes, "Holding onto this perception of unskilled labor and using that as a way to maintain this gap in pay, in benefits, and in overall opportunities, means that we're not building up the next generation of leadership." We are not unlocking the possibilities that might come with recognizing that skill and using it to create knowledge and to advance new ways of doing this work.

Many farmers I have spoken with believe they are operating within a system that is more likely to see farmers fail than thrive. There is power in acknowledging this – in saying it out loud, and then asking what might be. To amplify the words of Rue, a Maryland-based farmworker and co-trainer on the TEAMs program, "We tend to focus on farming *as it is*. And we need to sit with those pain points. But there's so much more that we can do if we turn our sights instead to the question of what might be possible" (personal communication, January 27, 2023). Reflecting on this dissertation and on the many conversations, brainstorm sessions, and working meetings that preceded it, I feel hopeful that this work will contribute in tangible ways to the broader efforts many others are also advancing in this space – from similar grassroots-level work to deeper advocacy and policy engagement. And I take heart in knowing that

together, these efforts are changing the landscape *and* the conversation about the value of farm labor. As Ariel Pressman, a former farmer and the current Director of Certification for the Real Organic Project, recently shared, “How we are thinking about and talking about labor has changed so much in the last 10 years. And though there’s still a long road ahead, the progress we are making together is so clear.”

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