

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

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Abstract

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

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

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

Keywords

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

Introduction

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

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

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

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

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

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

Cooperative Extension in Arkansas

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

Arkansas Alternative Agriculture and Local Food Systems

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

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

Theoretical and Conceptual Framework

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

AgroEcological-Educator Theory

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

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

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

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

Community Food System Development Framework for Change

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

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

Purpose and Research Questions

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

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

Methods

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

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

Instrumentation, Data Collection, and Analysis

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

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

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

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

Results

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

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

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

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

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

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

There was also a demonstrated need for wholesale markets:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

What is the Perception of Extension by Arkansas Urban Farmers?

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

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

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

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

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

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

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

Another participant expressed a similar sentiment:

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

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

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

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

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

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

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

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

Summary and Discussion

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

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

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

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

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

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

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

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

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

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

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

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

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

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