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Using Urban Farmer Perceptions of Urban Agricultural Resources to Inform Extension Programming: A Q Methodology Study

Joshua Campbell
Oklahoma State University Extension

Angel N. Riggs
Oklahoma State University - Main Campus

Diane Montgomery
Oklahoma State University - Main Campus

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Abstract

Urban farmers face challenges as they work among traditionally underserved populations, are new to farming, and may not recognize the resources available to them. The United States Department of Agriculture (USDA) prioritizes urban food production research and has recognized the unique challenges faced by urban farmers. The purpose of this study was to better understand the perspectives of urban farmers toward urban agricultural resources. Using the USDA Urban Agricultural Toolkit (2016) as a conceptual framework, this study found three perspectives of Oklahoma agricultural producers regarding urban agricultural resource challenges: The Visionary Farmer, The Business-minded Farmer, and The Learning Farmer. Visionary Farmers emphasize the application of urban agriculture toward urban social and community-building needs. Business-minded Farmers recognize the need for economic and financial education and resources for urban farmers. Learning Farmers highlight the need for continued agricultural education in urban agricultural operations. The findings suggest an opportunity for Extension and farmer-serving agencies to provide innovative communication, programming and support designed to address the unique struggles of urban farmers.

Keywords

urban farmers, urban food production, urban agriculture, Extension education, Q methodology, Extension

Cover Page Footnote/Acknowledgements

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Introduction

Greater than 80% of the United States population resides in urban areas (Ruemenapp, 2017), one-half of the nation lives in urban concentrations of 500,000 or more (Isserman, 2005), and interest in urban agriculture production has increased considerably in recent years (Harms et al., 2013). There are many definitions of urban agriculture (Bailkey & Nasr, 1999; Mougeot 2000; Quon 1999) but it is generally defined as the growing, processing, and distribution of food through plant production and animal husbandry in and around cities. The United States Department of Agriculture (USDA, n.d.) definition was adopted for this study. It defines urban agriculture as the cultivating, processing, and distributing of agricultural products in urban and suburban areas and includes community gardens, rooftop farms, hydroponic, aeroponic, aquaponic facilities, and vertical production as examples of urban agriculture (USDA, 2022). Urban agriculture has been identified as playing an important role in the resiliency of urban communities, specifically public health, the environment, and local economies (Angotti, 2015). The USDA has recognized urban food production as a priority and has developed programs to support urban agriculture research and innovation (USDA, 2022). The USDA (2016) maintains that agriculture and farmer's markets in urban environments provide easy access to fresh foods in areas where grocery stores may be miles away and are providing new income streams for residents.

Concerns about the environment and interest in community health and resiliency led to the recognition of urban agriculture as an integral part of a sustainable development path for cities, but urban agriculture producers face many challenges in developing successful agricultural enterprises (Hendrickson & Porth, 2012). Many of these issues are unique to the urban setting (Oberholtzer et al., 2014). The USDA (2016) urban agriculture toolkit identified several key resource areas of importance to urban agricultural producers and laid out the common operational hurdles that most urban farmers must consider as they start or expand their urban farm operation. Using the USDA toolkit as a framework, this study sought to identify the perspectives of urban Oklahoma agricultural producers toward resources for the success of their farm operation.

Food and agriculture became primarily rural policy topics through the historical process of urbanization, which led to the definition of certain issues as urban and others rural (Pothukuchi & Kaufman, 2000). Food production issues in the urban environment, however; historically were overlooked in public policy and planning (Pothukuchi & Kaufman, 2000). This resulted in gaps in food studies, urban planning, and public policy (Sonnino, 2009). Rapid urban expansion globally resulted in a swift loss of agricultural land in peri-urban areas, largely disconnecting cities from food production (Sonnino, 2009). Yet, food production does not belong only in rural areas (Morgan, 2009). Despite the loss of agricultural land around urban population centers, urban food production is a growing sector of food production worldwide (Buehler & Junge, 2016). Urban farmers face a variety of challenges unique to the urban setting, including social and educational issues (Diekmann et al., 2017), as well as land access, small and fragmented land bases, soil contamination, unstable land access, limitations due to zoning and public policy, and more (Opitz et al., 2016; Reynolds, 2011). Local governments, urban planners, university researchers, community organizations, and others involved in urban agriculture face great challenges in how to address these phenomena (Duzi et al., 2017).

In response to these challenges, urban agriculture is recognized as playing an important role in the resiliency of urban communities (Angoti, 2015). Urban agriculture has become a popular approach to environmental stewardship, increasing food security, and enhancing social cohesion in cities (Buehler & Junge, 2016). Recognition of the need for more emphasis on food production in urban settings led the United States Department of Agriculture to establish urban food production as a priority and developed urban agriculture funding programs to support urban agriculture research and innovation (USDA, 2016). The USDA Urban Agriculture Toolkit identified several key areas as resource challenges faced by urban food producers that impact their ability to successfully produce food in urban settings (USDA, 2016). These resource challenges are areas of emphasis for USDA resources and support. Additionally, the toolkit provides a guide for understanding the potential challenges of urban farmers and resources for support. Some research has looked at the perceptions of communities to urban agriculture (Hussain et al., 2019). However, there is a need for a better understanding of the perspectives of urban farmers, as the understanding of urban agriculture challenges is limited by a lack of good research data (Zezza & Tasciotti, 2010).

The central role of Cooperative Extension systems is to help local communities identify ways to solve their own problems (Cole, 1980). Extension's ability to address the needs of urban constituencies is critical (Fox et al., 2015) but requires knowing the community. Extension systems are exploring innovative approaches to addressing community needs that are locally relevant, including focusing on topics such as challenges in urban food systems (Fox & Peterson, 2017). Rummenapp (2017) maintains that Extension professionals must develop a deeper understanding of the unique and complex challenges of the urban context to remain responsive to the needs of urban communities. Extension professionals may be called upon to assist with subjects of importance to urban farmers and can provide the technical assistance that is needed in urban agriculture (Oberholtzer et al., 2014). Extension agents are tasked with demonstrating new technologies and production methods to the producers they serve (Lien et al., 2018). In situations in which little new technology is available to farmers, Extension programs aid in the development of best practices and farm management skills (Birkhaeuser et al., 1991). Understanding the attitudes and perceptions of clientele is central to the Extension agent's role of helping find solutions to resource management challenges experienced by urban agricultural producers (Clark et al., 2017). Extension professionals play a critical role in communities and a growing interest in urban food production has led to a need for Extension professionals to better understand the perspectives of people working in our food systems to help provide resources that address local needs (Campbell et al., 2022; Clark et al., 2017). Dobbins et al. (2021) recommend that Extension professionals expand their programming into urban agriculture, including putting more emphasis on urban food-system concepts in research and Extension programs.

Methodology

Q methodology was selected for this study because of its ability to help researchers identify and understand diverse perspectives. This methodology combines the strengths of both qualitative and quantitative methods for analyzing subjective viewpoints (Brown, 1993). Previous studies have considered the perspectives of policymakers on environmental practices, such as urban agriculture, and their role in the sustainable development of communities (Logan & Beltrao, 1995; Mulligan et al., 2018). Many Q studies in agriculture have focused on urban agriculture outside of the United States (Piso, 2019; Zulfiqar et al., 2021), yet Q studies

addressing urban agriculture in the context of Extension education have been underutilized in research. A better understanding of the perspectives of urban agriculture clientele served by Extension systems is needed. The purpose of this research was to improve the understanding of urban farmers' perspectives toward urban agriculture challenges so that they could be better served by Cooperative Extension programs.

Q methodology can be used by Extension professionals and other farmer-serving agencies to gain new knowledge about the viewpoints of their constituents and improve the quality and delivery of programming (Lien et al., 2018). The difference between Q methodology and surveys, interviews, or focus groups is that the response variable in Q methodology is the participant, not the participants' answers (Brown, 1980; McKeown & Thomas, 2013). Surveys and interviews provide a snapshot of what respondents think but are poorly suited to provide an understanding of how respondents think about the questions (Lien et al., 2018). Similarly, interviews and focus groups provide an understanding of how respondents think about an issue but make a comparison of viewpoints challenging (Lien et al., 2018). This difference makes Q methodology a powerful tool for Extension research (Lien et al., 2018). The methodology can provide an in-depth understanding of participant perspectives but is not intended to lead to broad conclusions about the population (Brown, 1993). This approach diverges from conventional factor analysis and turns the focus on the intercorrelations of perspectives enabling the quantitative study of small sample sizes (Brodt et al., 2004). While conventional factor analysis is designed around large sample sizes, this logic should not be applied to Q methodology (Watts & Stenner, 2012). For Q methodology, maintaining a minimum ratio of two Q-set items for every participant or twice as many items as you have participants is suggested (Watts & Stenner, 2012). This study included a 38-item Q set and 22 participants. Q methodology was applied to better understand the attitudes of central Oklahoma urban food producers toward urban agricultural resources.

Participants

The research procedures for this study were approved by the Oklahoma State University Institutional Review Board in February 2022. Participants, known as a P set, were selected based on their experience with urban food production. The study had 22 participants. The selection criterion for participation in the study was Oklahoma adults at least 18 years old and involved in urban food production. In Q methodology it is important to consider participants who provide meaningful viewpoints to the study subject matter (McKeown & Thomas, 2013). As a result, the P set was limited to individuals who indicated making full-time or part-time income from urban food production. Recruitment of participants focused on urban food producers in central Oklahoma and the greater Oklahoma City metropolitan area and potential participants were identified using existing Extension email lists. Participants were offered virtual and in-person participation options and were not incentivized to participate.

Instrument Development

A Q study starts with the exploration of the discourse surrounding the research topic, which in Q methodology is referred to as the concourse (Brown, 1993). This involves collecting as many diverse opinions about the topic as possible. For this study, a concourse was created by using the conceptual framework to guide the collection of the statements according to the seven

key urban agricultural resources defined by the USDA Urban Agriculture Toolkit (2016): 1) *Business Planning* – when beginning an urban farm, business, operating strategies and other business resource needs should be considered. 2) *Land Access* – many urban farmers struggle to find stable and affordable land access. 3) *Soil Quality* – in some urban areas soil contamination can present challenges. 4) *Water Access* – in urban settings water access can be costly and have restrictions on use. 5) *Capital and Financing* – successful urban food production can sometimes have significant start-up costs. 6) *Infrastructure* – successful urban farm operations often need special infrastructures such as cold storage; and 7) *Market Development* – urban growers depend on local markets and marketing strategies to facilitate connection with consumers.

These statements were generated from peer-reviewed studies, personal conversations, and experience working with Extension urban agricultural clientele. These statements were worded in a manner representing possible thoughts and beliefs of participants, not statements of fact about urban farming (McKeown & Thomas, 2013). Naturalistic statements came from the researcher's personal interviews and conversations with urban food producers. For example, the statement, "I need more than classroom education. I need someone to help me solve real problems on my farm," originated in this manner. Adapted statements are those derived from literature about the issue (Brown, 1980). The combination of naturalistic and adapted statements represents a hybrid concourse of communicability (McKeown & Thomas, 2013).

The full concourse of statements was then sampled resulting in a final Q set of 38 statements. Each participant was provided with a 17" x 22" printed record sheet consisting of an 11-column table with the 11 columns having a statistical value of -5 to +5 and a statement frequency of 2, 3, 3, 4, 4, 6, 4, 4, 3, 3, 2. Participants were asked to sort the 38 Q set statements from "most like me" to "most unlike me" using this provided sorting tool. Q sorting is the ranking of the Q set statements based on each participant's own perspectives, along a continuum (McKeown & Thomas, 2013). The forced distribution used in Q methodology requires participants to place a limited number of statements at the extremes of the scale. This requires careful thought regarding which statements they feel most strongly about (McKeown & Thomas, 2013).

The record sheet or document upon which sorters recorded responses included the condition of instruction, "What are your perceptions of urban agricultural resources?" This question provided each sorter a framework for understanding how to engage with the statements being sorted (McKeown & Thomas, 2013). After sorting, the participants were asked to complete an optional demographic sheet, which included questions related to gender, age, education, years of experience working in urban agriculture, whether urban farming is a full-time or part-time occupation, how long they have lived in their community, and where they seek support services. Further questions included an open-response request for further comments about the statements they sorted and their views on urban food production. All sorters were given the option to choose to participate in-person or via Zoom video conference. Two sorters elected to participate virtually.

Data Analyses

Ken-Q Analysis, KADE© (Ken-Q Analysis Desktop Edition), software (Banasick, 2019) was used to analyze the 22 sorts collected for this study. After inspecting centroid factor analysis and judgmental rotations with several solutions, a principal components analysis and varimax rotation resulted in the identification of three factors. Significance was determined through an

equation $1/\sqrt{n}*2.58$, where n equals the number of statements in the Q set, (Brown, 1980). Therefore, for this study, $1/\sqrt{38}*2.58 = 0.41$. The original significance level for inclusion was raised from 0.41 to 0.47 to define diverse perspectives more clearly. Eighteen of the 22 sorts reached the significance level on only one of the three factors, while four sorts did not reach significance on any factor. In addition, a factor array, or composite sort for each factor, was constructed using the standard score of all statements within each factor. Distinguishing and consensus statements were utilized to interpret the three factors. Distinguishing statements are those that are considerably different and serve to distinguish a factor from all others, whereas consensus statements reveal common ground among perspectives (Brown, 1980).

Table 1

Factor Matrix

Q Sort	Demographics	Factor 1	Factor 2	Factor 3
Sorter 4	Female, 27	**0.7365***	0.0139	-0.1699
Sorter 8	Female, 51	**0.7352**	0.047	0.0341
Sorter 5	Female, 60	**0.6967**	-0.0334	-0.1191
Sorter 10	Male, 40	**0.6249**	-0.0253	0.2709
Sorter 22	Female, 32	**0.5563**	0.2254	0.2361
Sorter 16	Male, 54	**0.5503**	0.0173	0.1918
Sorter 18	Female, 32	**0.5002**	0.1196	0.3978
Sorter 21	Female, 29	**0.4767**	0.3137	0.0115
Sorter 2	Male, 37	0.0716	**0.8023***	-0.063
Sorter 1	Female, 35	0.1783	**0.7757**	0.2088
Sorter 11	Female, 66	0.4034	**0.7131**	0.0904
Sorter 9	Male, 51	-0.3458	**0.6038**	0.2824
Sorter 15	Male, 32	-0.1675	**0.5518**	0.318
Sorter 6	Male 62	0.4659	**0.4907**	-0.0738
Sorter 12	Male, 46	-0.0541	-0.007	**0.7181***
Sorter 19	Male, 27	0.4336	0.0229	**0.6659**
Sorter 17	Male, 35	0.2371	0.2786	**0.6044**
Sorter 3	Female, 35	-0.0722	0.1135	**0.557**
Sorter 13	Female, 46	0.4691	-0.0739	0.2792
Sorter 7	Female, 23	0.2423	0.3477	0.4591
Sorter 20	Female, 34	0.0761	0.393	0.422
Sorter 14	Female, 59	0.1626	0.5109	0.4825

Note. Bold font indicates a defining sort, reaching the significance level on only one factor. *Indicates the exemplar sorters whose sorts had high factor correlations.

Findings

All sorting sessions for this study were conducted in-person with the exception of two sorts that were conducted using the Zoom video conferencing platform. Of the 22 participant sorters, 13 participants reported being female and seven were male. Sixteen participants indicated their race to be white. Five participants indicated their race to be black and one indicated their race to be Asian. Five participants reported a high school diploma as their highest

level of completed education, three reported an associate degree, 10 reported a bachelor's degree, and four reported a graduate degree being their highest level of completed education. Nine participants indicated urban food production as their full-time income source and 13 participants indicated urban food production as a part-time income source.

The array position of statements was utilized as the primary source for interpretation. However, relevant demographic information, field notes, and follow-up interviews with sorters whose sorts had high factor correlations (marked as exemplar sorts in Table 1) were used to reinforce the findings from the three identified perspectives named *The Visionary Farmer*, *The Business-minded Farmer*, and *The Learning Farmer*. The farmers that participated in this study represent a diverse group of people with different socio-economic backgrounds and various degrees of farm experience and business success, providing unique perspectives on the phenomena.

Factor Array 1 – The Visionary Farmer

The *Visionary Farmer* perspective highlights the role urban food production serves in urban communities, equity within the food system, and environmental challenges impacting urban food production. *Visionary Farmers'* community and climate focus are identified as themes in the interpretation of this perspective. Eight urban food producers defined this factor array with six identifying as female and two as male. The age range of these defining sorters was 27 to 60 and the years of farming experience ranged from 2-20 years. However, only two sorters had more than 10 years of experience making this a largely new and beginning farmer group. Three reported urban food production as their full-time occupation and four reported urban food production as a part-time occupation. The "Most Like" and "Most Unlike" statements for *The Visionary Farmer* are detailed in Table 2.

Table 2

The Visionary Farmer Most Like and Most Unlike Statements

Statement Number	Statement	*z* - score	Array Position
Most Like			
37	**Urban food systems build community social structure**	1.932	+5
30	**Urban farming brings a multitude of benefits to struggling communities.**	1.83	+5
11	Soil health is the most important factor for growing quality food in urban settings.	1.666	+4
16	Urban food production is important for a secure food system.	1.624	+4
38	Healthy communities begin with healthy food	1.543	+4
Most Unlike			
18	There just isn't enough practical university research on urban agriculture to help me make confident decisions about new farm methods.	-1.502	-5

9	**Full-time income from urban food production is practically impossible.**	-1.803	-5
6	Indoor growing is the future of urban food production.	-1.395	-4
3	**Producing food in urban settings is concerning because of the potential for soil contamination.**	-1.438	-4
13	A successful urban farmer needs access to loans to get started.	-1.294	-4

Note. Bold indicates distinguishing statements.

Visionary Farmers are community focused. They care about seeing their communities thrive and believe urban agriculture has the power to contribute positively to the social fabric of society and support positive change in struggling communities. The placement of Statements 37 and 30 in the "most like me," +5, column, demonstrate this community-centered perspective. These statements reflect a strong respect for the connection between urban food systems and larger societal issues. These farmers note the positive benefits related to food equity and the health and well-being of urban communities (Statements 16 and 24). As Sorter 3 stated in a post-sort interview, "I got involved with food production after seeing a great need for fresh food access in my community."

Statements in support of the concept of community focus include the following:

37. Urban food systems build community social structure. (Array Position +5)
30. Urban farming brings a multitude of benefits to struggling communities. (+5)
16. Urban food production is important for a secure food system (+4)
24. Urban agriculture is the best way to make the food system equitable. (+3)
14. My success depends on a strong demand for local food. (+2)
33. Cities and counties should adopt urban agriculture-friendly zoning. (+2)
1. Local foods would be more accessible if cities provided an inventory of local land available to lease. (+1)
7. Farmers Markets are vital to the success of urban farmers. (0)
36. Urban food producers better be ready for legal challenges that stem from operating in a city. (-3)

Another way to understand the *Visionary Farmers* is their regard for the environment, they recognize the challenges of global issues like climate change (Statement 22) and hold concerns about environmental issues such as soil health (Statement 11). While the environment and challenges to the environment are seen as important in this perspective (Statement 35), neither water resources nor soil contamination emerged as a major concern (Statements 4 and 3) indicating limited concern about the urban environment's impact soil and water quality for agriculture. However, there is a recognition of the importance of these issues to food production and the environment During a post-sort interview, Sorter 8 stated, "Soil health is our biggest priority, food security during changing climate is important to us."

Statements supporting this perspective's value of the environment include the following:

11. Soil health is the most important factor for growing food in an urban setting. (+4)
35. The best way to address urban environmental problems is with urban agriculture. (+3)
22. Urban food production can help reverse the impacts of climate change. (+1)
34. Climate change will lower the productivity of urban food production. (0)
4. Access to clean water is a major concern of mine. (0)
23. It's tough for an urban farmer to make a profit with the cost of municipal water rates. (-1)
3. Producing food in urban settings is concerning because of the potential for soil contamination. (-4)
6. Indoor growing is the future of urban food production. (-4)

Factor Array 2 – Business-minded Farmer

The Business-minded Farmer perspective highlights a need for access to loans and other support programs as well as the importance of farmers' markets and other food system infrastructure. In addition, this perspective indicates marketing and municipal zoning as important, but was not as concerned with climate or environmental issues. Six urban food producers defined this factor array with two identifying as female and four as male. The age range of these defining sorters was 32 to 66 and the years of farming experience ranged from three to 40 years. However, only two sorters had fewer than 10 years of experience, making this a largely veteran farmer group (USDA, 2016). One reported urban food production as their full-time occupation and four reported urban food production as a part-time occupation. The "Most Like" and "Most Unlike" statements for *The Business-minded Farmer* are detailed in Table 3.

Table 3

The Business-minded Farmer Most Like and Most Unlike Statements

Statement Number	Statement	*z*-score	Array Position
Most Like			
7	**Farmers' markets are vital to the success of urban food producers.**	2.027	+5
14	My success depends on the strong demand for locally grown food.	1.72	+5
13	**A successful urban farmer needs access to loans to get started.**	1.56	+4
38	Healthy communities begin with healthy food	1.263	+4
25	It is a challenge to find quality employees who want to work on a farm.	1.233	+4
Most Unlike			
6	Indoor growing is the future of urban food production.	-1.837	-5
4	**Access to clean water is a major concern of mine.**	-1.945	-5

8	The economic impacts of COVID-19 have been more severe for urban food production.	-1.586	-4
34	**Climate change will lower the productivity of food production.**	-1.708	-4

Note. Bold indicates distinguishing statements.

The *Business-minded Farmer* theme has a generally optimistic outlook recognizing there is a real opportunity for business success for urban farmers (Statements 7, 14, and 13). During a post sort interview, Sorter 6 stated, "I think there are many opportunities for urban farmers to have success if they have the right outlook. The only way for there to be enough farmers in the future is to invest in urban agriculture." Sorter 19 stated in a post-sort interview, "after graduating from college I started working on a farm and I loved the work, so I have decided to stick with it."

Statements in support of this perspective's optimistic outlook on urban farming include the following:

7. Farmers' markets are vital to the success of urban food producers. (+5)
14. My success depends on the strong demand for locally grown food. (+5)
13. A successful urban farmer needs access to loans to get started. (+4)
12. The washing and handling practices I use are the best way to ensure food is safe for my customers. (+2)
19. The government thinks urban agriculture is just a hobby. (0)
30. Urban farming brings a multitude of benefits to struggling communities. (-1)
16. Urban food production is important for a secure food system. (-1)
35. The best way to address urban environmental problems is with urban agriculture. (-3)
24. Urban agriculture is the best way to make the food system equitable. (-4)

Business-minded farmers while optimistic, also recognize the reality of the many challenges facing urban farmers and understand that these factors can play a role in their success. Statements 28, 32, and 36 highlight an understanding of the challenges facing urban farmers, including limited support resources, unstable land access, among other challenges. In a post-sort interview, Sorter 20 stated, Land access, capital, access to markets – these are all challenges to urban agriculture." Sorter 11 stated, "some of the state licenses and requirements are undue burdens for small farmers."

Statements supporting the recognition of challenges facing urban farmers include:

28. State and federal agencies are out of touch with what support urban food producers actually need. (+3)
32. Without the security of long-term land access, it's too risky to make a living with urban farming. (1)
36. Urban farmers better be ready for legal challenges that stem from operating in a city. (0)
29. Growing food in urban areas is much different than growing food in the country. (-1)

18. There just isn't enough practical university research on urban agriculture to help me make confident decisions about new farm methods. (-3)
34. Climate change will lower the productivity of food production. (-4)
4. Access to clean water is a major concern of mine. (-5)

Factor 3 – The Learning Farmer

The *Learning Farmer* perspective highlights the need for more training and business skills as well as the importance of university research and resources for the success of urban farmers. These sorts of farmers illustrate the need to provide on-going education both via classroom and on-farm initiatives. Four urban food producers defined this factor array with one identifying as female and three as male. The age range of farmers who defined this perspective was 27 to 46, and the years of farming experience ranged from 1-12 years. The majority of sorters had less than 10 years of experience, making this a largely new and beginning farmer group. One farmer reported urban food production as their full-time occupation and four reported urban food production as a part-time occupation. The "Most Like" and "Most Unlike" statements for *The Learning Farmer* are detailed in Table 4.

Table 4

The Learning Farmer Most Like and Most Unlike Statements

Statement Number	Statement	*z*-score	Array Position
Most Like			
26	**I need more than classroom education. I need someone to help me solve real problems on my farm.**	1.984	+5
1	**I wish I had the business skills I need for success as a farmer.**	1.952	+5
31	**Farm business training would help me increase my income.**	1.904	+4
14	My success depends on the strong demand for locally grown food.	1.732	+4
38	Healthy communities begin with healthy food	1.351	+4
Most Unlike			
22	Urban food production can help reverse the impacts of climate change.	-1.822	-5
35	**The best way to address urban environmental problems is with urban agriculture.**	-1.623	-5
13	A successful urban farmer needs access to loans to get started.	-1.1222.	-4
18	There just isn't enough practical university research on urban agriculture to help me make confident decisions about new farm methods.	-1.333	-4

8	The economic impacts of COVID-19 have been more severe for urban food production.	-1.182	-4

Note. Bold indicates distinguishing statements.

The *Learning Farmer* perspective indicates a need for experiential learning opportunities. Many urban farmers want to be shown how to perform certain farming practices by engaging in hands-on experiences and mentorship. Statements 26 and 27 highlight this need for more hands-on support in the form of demonstrations and on-farm visits. Sorter 19 stated in a post-sort interview, "I really need someone to provide on-farm support and advice."

Statements in support of this perspective's need for experiential learning opportunities include:

26. I need more than classroom education. I need someone to help me solve real problems on my farm. (+5)
31. Farm business training would help me increase my income. (+4)
27. I need classes to help me manage this farm. (+2)
5. Government support programs ignore urban farmers. (+1)
32. Without the security of long-term land access, it's too risky to make a living with urban farming. (+1)
28. State and federal agencies are out of touch with what support urban food producers actually need. (0)
18. There just isn't enough practical university research on urban agriculture to help me make confident decisions about new farm methods. (-4)

The Learning Farmer perspective also indicates a desire for more classroom instruction and an interest in new research efforts supporting urban farming. Statements 27 and 31 are examples of this. This perspective is hungry for more education. They recognize the importance of university research programs and learning the best practices and research-proven methods. Sorter 10 stated in a post-sort interview, "With the right financial teaching, urban farmers could be successful. There is a big need for more education."

Statements in support of a desire for more classroom instruction include:

1. I wish I had the business skills I need for success as a farmer. (+5)
31. Farm business training would help me increase my income. (+4)
16. Urban food production is important for a secure food system. (+3)
27. I need classes to help me manage this farm. (+2)
10. Local foods would be more accessible if cities provided an inventory of available land to lease for urban farming. (+1)
19. The government thinks urban agriculture is just a hobby. (0)
2. Urban areas need more dedicated land for food production. (-1)
9. Full-time income from urban food production is practically impossible (-2)
4. Access to clean water is a major concern of mine. (-3)

Conclusions and Discussion

Three distinct perspectives of urban food producers were identified in this study: *The Visionary Farmer*, *The Business-minded Farmer*, and *The Learning Farmer*. All three perspectives consider urban agriculture important for addressing critical issues facing communities, and all three agree that there are unique challenges facing urban food producers. This supports the notion that urban farming offers a range of benefits to local communities, including increased social connectedness, improved access to fresh produce, and educational and employment opportunities (Poulsen et al., 2017). The central difference in these perspectives has to do with views toward the primary role of urban agriculture in communities and the greatest challenges for urban food producers. *The Visionary Farmer* perspective supports the claims of McClintock (2010) that urban food production has the ability to strengthen a sense of community, reconnect consumers with farmers, raise awareness of environmental and human health issues, and keep money in local economies. This perspective highlights the challenge of urban agriculture in meeting social and community needs in urban communities. *The Business-minded Farmer* perspective supports findings that profitability, financing, and production costs are some of the biggest challenges that urban agriculture producers face (Oberholtzer et al., 2014). *The Learning Farmer* perspective supports findings that urban food producers have a high need for technical assistance in many areas that Extension staff can address (Oberholtzer et al., 2014).

Extension has traditionally focused less on urban food production, due to the organization's history of assisting with traditional agricultural communities (Harder et al., 2019). However, there is an opportunity for Extension to provide new programming and support designed to address the struggles of urban farmers (Clark et al., 2017). This study supports the idea that Cooperative Extension professionals should assess the best strategies to implement programs in the urban environment (Dobbins et al., 2021) and continually examine how to make Extension resources more accessible and engaging to target audiences (Campbell et al., 2022). Programs should not only address the topics of priority for urban farmers but the appropriate manner of delivery. Some urban farmers will be better served by traditional classroom programming while others will need direct on-farm assistance.

Implications for Research and Practice

The study reinforces the importance of technical, hands-on, and on-farm training for Extension clientele. For some clientele, classes and pamphlets are no substitute for having someone provide onsite farm support. In addition, it provides a better understanding of the perspectives of urban farmers regarding their challenges and offers insights for farmer-serving agencies such as Cooperative Extension as they seek to better serve urban agriculture workers and develop programs and communication strategies most aligned with the needs and preferred delivery methods of this group.

There are numerous resource challenges facing urban farmers and these challenges and their impacts need further exploration. The findings support the challenges for urban agriculture identified in the USDA urban agriculture toolkit (USDA, 2016) but these challenges may look different for different urban agricultural contexts. The findings support a need for further development of research and training to support urban farm enterprises. This study also suggests a need for more research on how Extension maintains effective face-to-face and on-farm support

services in an increasingly virtual world. Future studies should consider urban farmer perspectives across different urban contexts. Additionally, further research is needed to address how local issues like community policies surrounding urban agriculture and larger global issues like climate change impact urban farmers.

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