

Urban agriculture: local government stakeholders' perspectives and informational needs

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Research Paper

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Abstract

In many US states, the power to regulate urban agriculture (UA) rests in local governments. Although there has been increased interest in UA, some local governments have been slow to adopt policies or ordinances to foster food production in urban areas or have actively sought to limit UA in their municipalities. To learn more about the disconnect between resident interest and local government policy, University of Florida, Institute of Food and Agricultural Sciences Extension and Center for Public Issues Education conducted a statewide survey of local government stakeholders (LGS) to assess their attitudes toward UA, subjective knowledge of UA, perceived benefits of and barriers to the implementation of UA and educational needs. Responses were collected using 5-point semantic differential and Likert-type scales. Overall, respondents displayed positive attitudes and moderate knowledge of UA, and they identified a number of benefits of and barriers to implementing UA in their communities. The findings of this study support the hypothesis that lack of basic knowledge about UA is one difficulty in fostering UA. Despite being positively disposed toward UA, LGS may not fully understand how to effectively develop and implement policies to foster UA. This finding may also help explain reluctance to adopt local government policies to support UA. Efforts to provide LGS key information and enhance their knowledge of UA may support the development of UA activities.

Introduction

The increasing interest in the 'local food' movement—combined with increasing urbanization in much of the United States (USA) and worldwide—has led to an increase in urban residents and entrepreneurs seeking permission to implement urban agriculture (UA) operations or establish UA ordinances. Although there is no standard definition of UA, the term is used generally to refer to food production, processing and distribution within urban and peri-urban areas. These activities can be commercial (e.g., for-profit urban farms), non-commercial (e.g., community gardens) or a hybrid model in which some of the activities are for profit and others are for non-profit purposes. Despite myriad benefits of UA cited in the literature, some local governments have been slow to adopt policies or ordinances to foster food production in urban areas or have actively sought to limit UA in their municipalities. Gaining a deeper understanding of the knowledge and perspectives of the individuals who play a role in drafting, adopting or implementing these ordinances can provide guidance for how to effectively support opportunities for urban food production.

Review of literature

Definition of UA

Previous studies have highlighted the fact that there is no received definition of 'urban agriculture'. Rather, operationalizations of UA differ depending on region and country, as well as by field of study (Hodgson *et al.*, 2011). Some authors have used a definition focused on local food systems that takes into account everything from production through distribution and sales to food waste (Hendrickson and Porth, 2012). Similarly, the definition offered by the American Planning Association (APA) is expansive and covers commercial, non-commercial and hybrid activities including: home, community and institutional gardens; urban and peri-urban farms; farming on vacant lots; bee-, poultry and animal keeping; vertical and horizontal greenhouse production; aquaculture, hydroponics, aquaponics and composting (Hodgson *et al.*, 2011). In addition, the APA definition includes in its definition of UA a number of different sales and market channels, such as farmers' markets, farm stands, market gardens, mobile farm stands and community-supported agriculture operations (Hodgson *et al.*,

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2011). For the purposes of this research, we adopted the broad definition of UA, analogous to the one given by the APA, which includes all types of food and animal production urban and peri-urban areas, as well as direct sales and market channels in urban areas.

Benefits

The potential benefits of UA are expansive and include (a) individual health and nutrition, (b) community-level social benefits, (c) environmental sustainability and (d) economic opportunity.

The most salient health benefit of UA is increasing food access and food security (Brown and Jameton, 2000; Neff *et al.*, 2009; Meenar and Hoover, 2012; Smith and Harrington, 2014). This benefit is of particular interest in low-income areas where there is limited access to healthy food, and UA has been identified frequently in prior research as an effective means of improving such access (Blair *et al.*, 1991; Ober Allen *et al.*, 2008; Corrigan, 2011; Hale *et al.*, 2011; Kortright and Wakefield, 2011; Smith and Harrington, 2014). Along with merely increasing access to healthy food, UA can increase community members' consumption of fruits and vegetables (Alaimo *et al.*, 2008; Mukherji and Morales, 2010; Okvat and Zautra, 2011), which can reduce body mass index (Zick *et al.*, 2013). In addition, gardening, either at home or at community gardens, provides opportunities for physical activity (Armstrong, 2000; Twiss *et al.*, 2003; Park *et al.*, 2008; Teig *et al.*, 2009; Sommerfeld *et al.*, 2010; Kortright and Wakefield, 2011; Gray *et al.*, 2014).

UA has been identified as a means to improve the general health and well-being of community members and increase individual, community and environmental resilience (Okvat and Zautra, 2011). UA has also helped generate social capital in communities, particularly via community gardens (Brown and Jameton, 2000; Alaimo *et al.*, 2010; Okvat and Zautra, 2011; Hagley *et al.*, 2012). Such gardens can serve as places for people in the community to gather (Glover, 2004; Saldivar-tanaka and Krasny, 2004; White, 2011), as well as provide opportunities for education or youth development programs geared toward learning about food, nutrition and sustainability (Fusco, 2001; Krasny and Doyle, 2002; Holland, 2004; Saldivar-tanaka and Krasny, 2004; D'Abundo and Carden, 2008; Krasny and Tidball, 2009; Travaline and Hunold, 2010; Kortright and Wakefield, 2011). Moreover, UA has the ability to enhance the esthetic appeal of neighborhoods by increasing biodiversity or providing a habitat for pollinators (Galluzzi *et al.*, 2010; Taylor and Lovell, 2014).

Finally, UA has been identified as a means for community and economic development (Mukherji and Morales, 2010). UA can help facilitate creation of jobs or workforce training programs (Beckie and Bogdan, 2010; Cohen and Reynolds, 2014; Vitiello and Wolf-Powers, 2014; Poulsen, 2017), and successful UA activities may draw new businesses to economically depressed areas (Kaufman and Bailkey, 2000). Activities such as community gardens have been found to increase nearby property values, especially in low-income communities (Voicu and Been, 2008; Guitart *et al.*, 2012).

Barriers

Despite these many benefits, UA has been hindered by a variety of barriers—from logistical issues at the level of an individual operation to local government policies that either fail to support or actively hinder UA activities.

Key logistical barriers reported in prior literature include zoning and city ordinances, homeowners' association (HOA) restrictions and access to resources and capital (Hendrickson and Porth, 2012; Vaage and Taylor, 2015; Recknagel *et al.*, 2016; Kopyiwattage *et al.*, 2019). In urbanized areas, issues of resource access often include lack of access to land, lack of access to water and restrictions on water use (Hagley *et al.*, 2012; Wortman and Lovell, 2013; Angotti, 2015). In some cases, however, the issue is not so much availability of land, but contamination of the land to which a would-be UA operation has access (Hagley *et al.*, 2012; Wortman and Lovell, 2013; Surls *et al.*, 2014). In addition, a lack of financial resources poses substantial barriers to developing and sustaining UA operations (Hagley *et al.*, 2012; Daftary-Steel *et al.*, 2015).

Restrictive policies, regulations and laws (e.g., zoning, codes of ordinances, permitting requirements, state and local statutes) have all been identified as barriers to UA and targets for change to improve food access or the resilience of their local food systems (Castillo *et al.*, 2013; Horst *et al.*, 2017). Changes in local and regional land-use policies, including zoning and land-use planning, have been identified as key areas needing change to expand opportunities for urban farming (Mukherji and Morales, 2010; Desjardins *et al.*, 2011; Hagley *et al.*, 2012; Angotti, 2015). Zoning is one important way—but not the only type of policy option, such as facilitating land-use for UA or including food uses in comprehensive plans—to promote UA (Mukherji and Morales, 2010). To that end, food policy councils have worked to improve community food systems by promoting UA via planning and zoning (McClintock *et al.*, 2012; Scherb *et al.*, 2012; Boden and Hoover, 2018; Gupta *et al.*, 2018; Haines, 2018). Partnering with local government to incorporate food uses in planning has been recognized as an important way to improve public health outcomes, such as food insecurity and diet-related disease (Mui *et al.*, 2018). The US South is an area of particular interest to UA, and focusing on the perspectives of local government decision makers is a fruitful area of inquiry (Fricano and Davis, 2020).

We are using the term 'local government stakeholder' (LGS) to refer to elected officials, such as mayors or city/county commissioners, and local government staff, such as planners, code enforcers and city managers. Given the potential value of UA and the necessity of local government involvement in developing policies and plans to allow food production in areas that are not traditional agricultural areas, it is necessary to gain a deeper understanding of LGS' knowledge, attitudes, perceived benefits and barriers and needs related to UA. In addition, differentiating the perspectives of local leaders who impact UA development can support the development of targeted educational materials and trainings. It is important to note that local governments differ in their attention to and support of food systems and UA, with some employing staff whose jobs wholly or partially focus on food systems issues—including UA policies and regulations—such as food policy coordinators or sustainability managers. In other governments, issues related to food are included in someone or a few people's jobs by happenstance, such as a parks and recreation manager who becomes responsible for a community garden program, but that person may have no specific competence or interest in gardening. At the other end of the spectrum, some local governments have no one who addresses issues related to UA or food systems at all (Raja *et al.*, 2008; Hagley *et al.*, 2012; Gupta *et al.*, 2018). In addition, research has shown that the perspectives rural vs urban government stakeholders have differing

perspectives and priorities on food systems, which may affect their interest in or willingness to adopt policies supportive of UA (Rahe *et al.*, 2018).

Regarding attitudes, an important baseline question is whether LGS generally hold positive or negative attitudes toward UA, including its importance, usefulness or being good for farmers and communities. Although some LGS may personally unsupportive of UA or they may think that their constituents are unsupportive of UA, perhaps due to a perceived public nuisance (Mukherji and Morales, 2010), it may be that the barriers to implementing more supportive policies is a simple lack of knowledge on the part of the LGS or their constituents, or a lack of effective collaboration between local government agencies or elected officials to support UA. An equally important factor is their general level of knowledge about agriculture as well as their knowledge about the specific types of UA activities. Additional considerations that could affect their interest in supporting UA are their level of knowledge about their local community, such as awareness of the UA activities that are currently occurring in their communities or knowing who the key stakeholders are in UA in their community. Finally, it is important to assess whether, and to what extent, LGS are aware of the ways that laws (such as right to farm laws), land-use planning and zoning policies can affect current or prospective UA operations because, as discussed above, these factors can substantially affect the viability of UA operations.

Some policies that LGS may want to adopt will need to include specifications for UA operations and management, activities about which they may be unfamiliar. Their goal is to ensure that they are supporting UA and all its potential benefits while also respecting the concerns of other residents about potential nuisance from UA. For this reason, there are a variety of types of information that may be useful to draft and implement UA policies, including specific definitions and terminology (such as how to define a market garden or what the term 'integrated pest management' means); evidence-based information on the social, environmental, economic and other impacts of UA; environmental best management practices; health and safety policies for UA; effective models other communities have used to enhance UA. From the point of view of groups working to foster LGS' efforts to support UA, it is also useful to know how what types of information and training LGS would like to receive.

Purpose and objectives

The overall purpose of this study was to quantify LGS' self-reported knowledge, attitudes, perceptions and informational needs related to UA, and to identify and describe differences in their knowledge, attitudes, perceptions and informational needs depending on whether they are directly involved with UA as a part of their jobs or not and whether they are from urban vs rural counties. This research was conducted to inform the development and delivery of informational and educational outreach efforts targeted to LGS to help support the development of UA in Florida.

The specific objectives of the study were as follows. The first objective was to describe LGS based on whether they are or are not directly responsible for UA as part of their job and whether the county or municipality for which they work is in a rural vs urban area. The second objective of the project was to identify LGS' knowledge about UA, and to assess whether there were differences in their overall knowledge of UA or knowledge of specific topics related to UA depending on whether they worked on UA as a part of their job or were in an urban area. We hypothesized that

LGS in urban areas and LGS whose job duties included UA would display higher levels of knowledge about UA in general and about specific UA topics. The third objective of the research was to quantify LGS' attitudes toward UA and to assess whether there were differences in those attitudes based on whether the LGS had UA job duties or worked in an urban area. For the third objective, we hypothesized that LGS who work on UA or work in an urban area would hold more positive attitudes toward UA than their rural counterparts or than people who do not work on UA as a part of their job. The fourth objective was to identify LGS' perception of the benefits of and barriers to implementing UA in their communities, and to assess whether there were differences in LGS' perceptions in urban vs rural areas or based on whether the LGS worked on UA-related tasks as a part of their job duties. For the fourth objective, we hypothesized that LGS working on UA or in urban areas would have perceptions of the benefits of and barriers to UA that more closely match the benefits and barriers that have been documented in previous research. The final objective of the study was to identify LGS' informational needs and preferred methods of information delivery, and to assess whether there were differences in those needs and preferences depending on the LGS' job responsibilities or the urbanity of their community.

Methods

Population, data collection and sample

The population of interest in this study was Florida LGS in positions related that may be directly or indirectly related to UA policy development and implementation. To establish the population frame, University of Florida, Institute of Food and Agricultural Sciences (UF/IFAS) Extension and Center for Public Issues Education researchers accessed public websites of county and city governments across the state and compiled a database of contact information from LGS in the following positions: (a) county and city commissioners, (b) county and city managers, (c) county and city clerks, (d) mayors, (e) county and city planners, (f) zoning administrators, (g) parks and recreation directors, (h) strategic initiative managers and (i) environment and sustainability directors ($N = 2623$).

Identified members of the targeted population were then sent an introductory email with information about the upcoming study, an initial launch email with an online link to the survey and a follow-up reminder email each week for 3 weeks after the launch of the study. Duplicate emails, undeliverable emails and email to individuals no longer in office were removed, which yielded a revised population frame of 2364 LGS. Useable responses were collected from 221 LGS. Respondents who did not answer the independent (grouping) variable of this study were removed from analysis, which yielded a total sample of 216 LGS for a 9.12% response rate. Due to limitations of time and financial resources, we were not able to utilize methods that could have increased response rate, such as mailing postcards to the target population prior to distributing the survey and subsequently mailing printed versions of the survey to LGS who did not complete the online survey (Dillman, 2014). These methods to improve response rate may have proven particularly useful to use with LGS—to provide additional information about the survey and to establish its relevance—because they may have disregarded the introductory email as well as the survey invitation and reminders because they were not familiar with UF/IFAS

Extension or because they thought that the survey was not relevant to them if their county or municipality does not have substantial agricultural production. Responses from survey recipients revealed another potential reason for the low response rate—a reason that would have certainly been mitigated by mailing the surveys. That is, many LGS are explicitly not allowed to click on links in email from external sources via their government computers and email accounts, even if they know the sender. Due to the low response rate, nonresponse bias was assessed by comparing early to late respondents (Miller and Smith, 1983; Lindner *et al.*, 2001; Johnson and Shoulders, 2017). To better inform readers of the risk of type II error, the statistical test used, number of respondents in each group, statistical power and results of each test are reported (Johnson and Shoulders, 2017). Early respondents (those responding prior to the final reminder email; $n = 178$) were compared to late respondents ($n = 43$) on the dependent variables of interest in this study, i.e., knowledge, attitudes and perceived benefits, using two-tailed independent *t*-tests at the 0.05 alpha level. There were no significant differences between early and late respondents on knowledge [early $M = 3.16$, $SD = 0.87$; late $M = 3.14$, $SD = 0.89$; $t(213) = 0.13$; $P = 0.89$]; attitudes [early $M = 4.36$, $SD = 0.69$; late $M = 4.42$, $SD = 0.57$; $t(213) = -0.53$; $P = 0.60$] or perceived benefit of UA [early $M = 3.98$, $SD = 0.64$; late $M = 4.02$, $SD = 0.62$; $t(213) = -0.40$; $P = 0.72$]. However, it should be noted that sample sizes per group were smaller than the recommended minimum for detecting the anticipated small effect size (Cohen, 2013), which may indicate increased risk of type II error (much higher than 20%). Therefore, the results of this study should not be generalized beyond the sample. Although the results of this study should not be generalized beyond this sample, they do point to the value of future research, particularly qualitative research, in the future, as we discuss below.

Instrument

A researcher-developed questionnaire was used as the instrument for this study. The instrument was assessed for face and content validity by a panel of experts that consisted of a section chair of the Florida Chapter of the APA, a senior planner in Alachua County, a city planner involved in drafting the UA ordinance for the City of Gainesville, a strategic customer experience manager and former senior planner, a policy specialist at the National Sustainable Agriculture Coalition, and a County Extension Director. The panel reviewed the instrument for content accuracy, grammar and readability. Internal consistency reliability of scales was calculated using Cronbach's alpha. Six sections of the instrument were used for data analyses: (a) subjective knowledge; (b) attitudes; (c) perceived benefits and barriers; (d) informational and training needs; (e) preference of methods for receiving information or training and (f) personal and professional characteristics, including involvement in managing UA as part of their job description.

Based on researcher experience and expert panel feedback that the term 'urban agriculture' may bias responses, the term 'local food production' was used throughout the questionnaire in lieu of 'urban agriculture'. However, the survey provided an operational definition of 'local food production' to respondents after the knowledge assessment component. This operational definition specified the definition of the term that respondents should use in answering the survey questions. The definition was as follows:

'For the purpose of this survey, the term "local food production" refers to the production, processing, distribution, and sale of food within urban

and suburban areas for noncommercial/hobby, commercial, educational, or nonprofit purposes. Examples of these activities include:

- food producing gardens (community, backyard, institutional, market, or rooftop);
- edible landscaping;
- bee, poultry, and animal keeping;
- farmers' markets or mobile produce trucks;
- urban or market farms; and
- innovative food-production methods, such as hydroponics, aquaponics, and aquaculture'.

We provided this operational definition because, as mentioned above, there is no standard definition of UA or of the more general term 'local food production'. We wanted to directly specify the set of activities that we were interested in respondents' knowledge, perceptions and attitudes about, rather than letting them utilize their own definition, which may have been more narrow or expansive than we intended.

Subjective knowledge was assessed using seven items intended to measure respondents' self-perceived knowledge of UA topics. Responses were collected using a 5-point scale of agreement (1 = strongly disagree; 5 = strongly agree). A construct mean was computed to represent overall subjective knowledge. The internal consistency reliability estimate for this scale was $\alpha = 0.86$. Attitude toward UA was assessed using a 5-point semantic differential scale between nine sets of bipolar descriptors (e.g., bad/good, harmful/beneficial). The five response scale points were coded from -2 to $+2$ for analysis, and a construct mean was computed to represent overall attitude. The internal consistency reliability for this scale was $\alpha = 0.93$.

To assess perceived benefits, respondents were asked to indicate their level of agreement with 12 outcomes as resulting from UA. The outcomes selected for inclusion in this section of the instrument were those identified frequently across prior literature as benefits of UA. Responses were collected using a 5-point Likert-type scale of agreement (1 = strongly disagree; 5 = strongly agree). The internal consistency reliability for this scale was $\alpha = 0.93$. To assess their perceived barriers to UA, respondents were asked to indicate the extent to which 12 factors hindered local food production in their city or county. Items selected for inclusion in this construct were most frequently cited in prior research as key barriers to UA. Responses were collected using the same, previously mentioned 5-point Likert-type scale of agreement. The internal consistency reliability for the barriers scale was $\alpha = 0.89$.

Usefulness of UA informational or training topics was assessed using ten items reflective of the various topics LGS may need to facilitate UA and make informed decisions about UA policies. To assess their preferred methods of receiving UA information or training, respondents were asked to indicate how useful different types of delivery methods would be to them. Responses for both informational topics and training delivery methods were collected using 5-point ordinal scales of usefulness (1 = not at all useful; 5 = extremely useful). Finally, a series of questions were asked to describe the personal and professional characteristics of respondents. Respondents were asked whether they managed or address issues related to UA as part of their job responsibilities. UA job involvement was coded (1 = yes; 2 = no) and used as the independent, or grouping, variable of this study. As a second independent variable, the USDA rural-urban continuum codes for each county were used to classify respondents as being from rural vs urban areas (USDA Economic Research Service, 2013).

Data analysis

Data were analyzed using the SPSS software package. Independent samples' *t*-tests were employed to determine whether statistically significant differences existed between LGS involved and not involved in UA and LGS in rural vs urban areas on the dependent variables of interest, i.e., knowledge, attitudes and perceived benefit and barriers. A significance level of 0.05 was established *a priori*. Levene's test was employed to ensure the assumption of homogeneity of variance was not violated, and effect size was calculated and interpreted using Cohen's *d*. Descriptive statistics (e.g., frequencies, percentages, means and standard deviations) were then used to describe each LGS group on the variables of interest.

Results

Objective one: UA job duties and rural vs urban respondents

Objective one sought to describe respondents involved and not involved in UA as part of their job and those working in local government positions in rural vs urban counties. Somewhat surprisingly, because the survey recipients were selected due to the likelihood of having responsibility for UA as a part of their job, the majority of respondents (63%) had no professional engagement with UA. Although Florida has substantial agricultural production and large areas that remain in rural/agricultural landuse, the overwhelming majority of respondents (78%) worked in local government—either county or municipal government—in a county classified as urban (see Table 1). One reason that such a large proportion of the survey respondents were from urban areas is that the USDA rural vs urban classification is assigned at the county level. Based on data from the last US census, currently 44 of Florida's 67 counties are classified as urban (United States Department of Agriculture, Economic Research Service, 2019). As a result, some counties that contain a large city will be classified as urban, while still having some traditional farming communities or rural areas within the county.

Objective two: subjective knowledge about UA

Overall, LGS who responded to this survey reported moderate levels of knowledge about UA ($M = 3.15$, $SD = 0.87$), and, on average, respondents whose jobs involved UA held a higher degree of subjective knowledge ($M = 3.58$; $SD = 0.09$) than those whose jobs did not ($M = 2.90$; $SD = 0.83$). As we hypothesized, this difference, 0.677, 95% confidence interval (CI) [0.451, 0.904] was statistically significant, $t(213) = 5.90$, $P = 0.000$. A large-sized effect was observed ($d = 0.84$; Cohen, 2013). Full descriptive results revealed that, although respondents whose jobs involved UA perceived themselves as more knowledgeable of UA topics than did those not involved, both groups agreed most that they understand the impact of zoning ordinances on local food production compared to other topics. Similarly, both groups perceived themselves as least knowledgeable about the Florida Right to Farm Act and how it impacts their jurisdictions' ability to regulate local food (see Table 2). Although there was a significant difference between the knowledge of LGS involved with UA as a part of their job and those that were not, counter to what we hypothesized, there was no significant difference observed between urban ($M = 3.18$; $SD = 0.88$) and rural ($M = 3.05$; $SD = 0.84$) respondents' overall knowledge of UA; $t(213) = 0.91$, $P = 0.36$. Furthermore, when examining knowledge of individual topics, significant differences

were observed only for one item—familiarity of activities included under the umbrella of UA. Urban respondents perceived themselves as being more familiar with activities considered to be UA than did rural respondents (see Table 3). The fact that we did not find a significant difference in self-reported knowledge in rural vs urban LGS on all but one individual topic may have been influenced by the above-discussed USDA rural/urban classification scheme, which could have resulted in some of the respondents who were classified as 'urban' actually working in a local government in an area that is not ostensibly urban in the traditional sense of the term.

Objective three: attitudes toward UA

Turning now to LGS' attitudes toward UA, the survey assessed general attitudes toward UA, such as its desirability, importance and usefulness. As we hypothesized, respondents with job duties related to UA held overall more positive attitudes of UA activities ($M = 1.56$; $SD = 0.51$) than respondents whose job duties did not ($M = 1.27$; $SD = 0.73$). Levene's test was statistically significant, so equal variances were not assumed. Results revealed a statistically significant difference in means (0.288 at 95% CI [0.104, 0.471], $t(206.5) = 3.40$, $P = 0.001$). A medium-sized effect was observed ($d = 0.46$). Regarding the attitudes of urban vs rural LGS, there was no significant difference in overall attitudes toward UA (urban: $M = 4.34$; $SD = 0.68$; rural: $M = 4.42$; $SD = 0.67$; $t(213) = -0.54$, $P = 0.59$). The survey also included questions to assess LGS' attitudes regarding the impact UA may have on specific communities or groups. In particular, respondents were asked whether UA was good or bad for each of the following groups: rural communities, urban communities and traditional farmers. These questions were included because we were interested in knowing whether LGS in rural areas perceived UA to be good for urban communities (and vice versa) or whether LGS had different attitudes toward UA's impact on traditional farmers depending on whether they were in a rural vs urban county. Interestingly, there were no significant differences between urban and rural respondents on any of the individual items. We found this somewhat surprising as we had expected—based on the feedback from our expert panel—that people in rural areas may perceive that UA could negatively impact traditional farmers or that urban vs rural LGS may have different perceptions of the extent to which UA would benefit urban vs rural communities. As with the lack of differences in knowledge between the rural vs urban respondents, we repeat the caveat that the USDA rural/urban classification system may have had some impact on this finding.

Objective four: perceived benefits of and barriers to UA

As discussed in the Introduction, this research was initiated because UF/IFAS Extension was seeking to develop programs to support UA. Knowing what LGS perceive to be UA's benefits can provide guidance for the types of education that may be useful for LGS, if they are unaware of some of its potential benefits. Alternatively, knowing what LGS perceive to be the benefits of UA can provide guidance on the goals that they may be seeking to achieve by supporting UA. For example, if LGS perceive that increasing access to healthy food is a benefit of UA, Extension could provide training and informational tools for how to implement UA programs in their community to help them achieve that goal. We found statistically significant differences in the perceived

Table 1. Personal and professional characteristics of respondents involved and not involved in UA activities as part of their job and in urban versus rural areas

Variable	Involved		Not involved		Urban		Rural	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Job position^a								
County commissioner	12	15	13	9.6	20	11.6	7	14.6
City commissioner	22	27.5	38	27.9	49	28.3	11	22.9
County manager	2	2.5	6	4.4	6	3.5	2	4.2
City manager	9	2.5	13	9.6	18	10.4	5	10.4
City clerk	0	0	16	11.8	9	5.2	7	14.6
Mayor	13	16.3	9	6.6	20	11.6	3	6.3
County planner	7	8.8	8	5.9	9	5.2	6	12.5
City planner	6	7.5	10	7.4	14	8.1	2	4.2
Zoning administrator	0	0	2	1.5	2	1.2	0	0
Parks and recreation director	2	2.5	3	2.2	4	2.3	1	2.1
Strategic initiative manager	1	1.3	1	0.7	2	1.2	0	0
Director of sustainability	3	3.8	1	0.7	4	2.3	0	0
Other	3	3.8	16	11.8	15	8.7	4	8.3
Time in current position^b								
Less than 1 year	7	8.8	13	9.6	16	9.2	4	8.3
1–5 years	34	42.5	58	42.6	77	44.5	16	33.3
6–10 years	13	16.3	20	14.7	22	12.7	11	22.9
More than 10 years	19	23.8	28	20.6	39	22.5	8	16.7
Time in government position^c								
Less than 1 year	4	5.0	0	0	4	2.3	10	20.8
1–5 years	18	22.5	28	20.6	37	21.4	8	16.7
6–10 years	9	11.3	26	19.1	27	15.6	21	43.8
More than 10 years	42	52.5	63	46.6	84	48.6	39	81.3
Political affiliation^d								
Republican	26	32.5	45	33.1	54	31.2	17	35.4
Democrat	19	23.8	25	18.4	36	20.8	9	18.8
Independent	7	8.8	12	8.8	18	10.4	1	2.1
Non-affiliated	4	5.0	6	4.4	9	5.2	1	2.1
Prefer not to answer	16	20	27	19.9	32	18.5	11	22.9
Political beliefs/values^e								
Very conservative	7	8.8	10	7.4	10	5.8	7	14.6
Conservative	16	20	31	22.8	37	21.4	10	20.8
Moderate	30	37.5	37	27.2	59	34.1	8	16.7
Liberal	8	10	15	11	18	10.4	6	12.5
Very liberal	3	3.8	6	4.4	7	4.0	2	4.2
Prefer not to answer	8	10	16	11.8	18	10.4	6	12.5
Age category^f								
20–29	1	1.3	2	1.5	3	1.7	8	16.7
30–39	9	11.3	11	8.1	16	9.3	10	20.8
40–49	10	12.5	22	16.2	28	16.2	12	25.0

(Continued)

Table 1. (Continued.)

Variable	Involved		Not involved		Urban		Rural	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
50–59	18	22.5	32	23.5	39	22.5	5	10.4
60–69	25	31.3	27	19.9	41	23.7	1	2.1
70+	5	6.3	12	8.8	12	6.9	5	10.4

^aResponse missing for 1 in the urban group.
^bResponses missing from 7 participants in involved group; 17 from not involved group. Responses missing for 19 in the urban group, 9 from the rural group.
^cResponses missing from 7 participants in involved group; 19 from not involved group. Responses missing for 21 in the urban group, 9 from the rural group.
^dResponses missing from 8 participants in involved group; 21 from not involved group. Responses missing for 24 in the urban group, 9 from the rural group.
^eResponses missing from 8 participants in involved group; 21 from not involved group. Responses missing for 24 in the urban group, 9 from the rural group.
^fResponses missing from 12 participants in involved group; 30 from not involved group. Responses missing for 34 in the urban group, 12 from the rural group.

Table 2. Self-perceived knowledge of respondents involved and not involved in managing UA activities as part of their job description

Item	Involved (<i>n</i> = 79)		Not involved (<i>n</i> = 136)	
	<i>M</i>	SD	<i>M</i>	SD
I understand the impact of zoning ordinances on local food production	4.27	0.90	3.84	0.99
I am familiar with the activities included under the umbrella of local food production	3.80	0.91	3.13	1.06
I am aware of the current local food production activities in my city/county	3.74	0.89	3.15	1.12
I can identify key stakeholders in local food production in my city/county	3.62	1.09	2.95	1.18
I am aware of advocacy groups for local food production in my community	3.30	1.29	2.48	1.09
I am familiar with the Florida Right to Farm Act	3.23	1.35	2.45	1.32
I understand how the Florida Right to Farm Act impacts my jurisdiction’s ability to regulate local food	3.11	1.36	2.33	1.25
Construct	3.58	0.09	2.90	0.83

Note. Responses collected using 5-point scale (1 = strongly disagree; 5 = strongly agree).

Table 3. Local food production knowledge of urban and rural respondents

Item	Urban		Rural	
	<i>M</i>	SD	<i>M</i>	SD
I understand the impact of zoning ordinances on local food production	4.00	0.98	4.00	0.99
I am familiar with the activities included under the umbrella of local food production	3.46*	1.07	3.08*	0.94
I am aware of the current local food production activities in my city/county	3.36	1.10	3.42	0.99
I can identify key stakeholders in local food production in my city/county	3.15	1.18	3.35	1.23
I am aware of advocacy groups for local food production in my community	2.85	1.25	2.56	1.15
I am familiar with the Florida Right to Farm Act	2.80	1.39	2.50	1.31
I understand how the Florida Right to Farm Act impacts my jurisdiction’s ability to regulate local food	2.67	1.36	2.44	1.30
Construct	3.18	0.88	3.05	0.84

**p* < 0.05.

benefits of UA between respondents whose job duties involved UA (*M* = 4.19; *SD* = 0.578) and those whose duties did not (*M* = 3.87; *SD* 0.63, *t*(211) = 3.52, *P* = 0.001). The mean difference was 0.306, 95% CI [0.134, 0.480], and represented a medium-sized effect (*d* = 0.50). Descriptive analyses by group revealed that respondents with jobs involving UA activities perceived that the top four most important benefits of UA were, in order,

opportunities for youth development, improvement of general health and well-being of community members, opportunities for educational experiences among community members and fostering community engagement. Respondents not involved in UA as part of their job agreed in their rankings on the first and fourth benefits (opportunities for youth development and fostering community engagement). However, they ranked providing

Table 4. Benefits of UA perceived by respondents whose jobs did and did not involve UA activities

Benefit outcome	Involved (<i>n</i> = 79)		Not involved (<i>n</i> = 134)	
	<i>M</i>	SD	<i>M</i>	SD
Provides opportunities for youth development programs	4.53	0.64	4.25	0.77
Improves general health and well-being of community members	4.48	0.68	4.05	0.86
Provides opportunities for educational experiences for community members	4.47	0.64	4.13	0.74
Fosters community engagement	4.46	0.69	4.08	0.79
Increases food access and security	4.45	0.73	4.12	0.85
Generates social capital in communities	4.41	0.69	3.99	0.86
Enhances local economies	4.34	0.73	4.08	0.89
Increases community members' consumption of fruits and vegetables	4.33	0.83	3.98	0.88
Generates new market opportunities for farmers	4.19	0.92	3.86	0.94
Enhances the esthetic appeal of neighborhoods	3.68	1.09	3.51	0.87
Increases property values	3.51	1.02	3.31	0.87
Increases saving for county/city agencies	3.41	1.04	3.20	0.90
Construct	4.19	0.58	3.87	0.63

Note. Responses collected using 5-point scale (1 = strongly disagree; 5 = strongly agree).

educational experiences for community members as the second highest benefit (instead of third) and increasing food access and security was ranked third, in contrast to respondents whose jobs involved UA who had it ranked fifth. There are two potential explanations for this surprising difference in the perceived benefit that UA can have on food access and security. The first is that people who work in UA may be more engaged with their communities—either UA farms, community groups or nonprofits—and hence may have increased knowledge of the benefit of supporting community engagement as compared with the benefits they have seen in relation to food access. The second—and potentially more important—reason is that people working in UA may understand the benefits of UA through a more expansive lens of overall health and well-being, rather than a merely as a means for food access, because their work in UA increases awareness of other health and well-being benefits of UA, such as the mental health or physical activity benefits of gardening. This supposition is supported by the fact that people working in UA ranked improving health and well-being as the second benefit, whereas it was the sixth highest benefit for those who do not work on UA. Both groups agreed least that a benefit of UA is an increase property values and an increase savings for county/city agencies (see Table 4). The research that highlighted the increase in property values was predominantly conducted in densely urban areas, such as Chicago and Baltimore (see, e.g., Voicu and Been, 2008; Poulsen *et al.*, 2014; Rogus and Dimitri, 2015), so it may be that in Florida's sprawling cities, there is indeed less of a property value benefit from UA. In addition, given the finding that both of the groups displayed moderate or limited knowledge about UA, it is not surprising that increasing savings for city/county agencies was the benefit that was rated the lowest—without extensive knowledge of UA, it is understandable that respondents may not have had a clear understanding of *how* UA could increase such savings.

No significant differences were observed between urban ($M = 4.01$; $SD = 0.64$) and rural ($M = 3.92$; $SD = 0.59$) respondents' overall perceived benefits of UA; $t(213) = 0.83$; $P = 0.40$. An

examination of individual benefits revealed significant differences between a single item; urban respondents agreed more than rural respondents that UA increases community members' consumption of fruits and vegetables (see Table 5). This finding is supported by the literature on the impacts of community garden programs in urban parts of the northeast USA that have robust community garden programs that are intended to increase food access and have had demonstrated success at doing so (Blair *et al.*, 1991; Meenar and Hoover, 2012; Barthel and Isendahl, 2013; Poulsen *et al.*, 2014); thus, it may be that urban respondents are more familiar with the role of UA in improving food access and healthy food consumption.

As with perceived benefits, Extension program development is improved by knowing LGS' perceptions of barriers to UA in order to identify the information and tools that would help them overcome those barriers. We found no statistically significant differences in overall perceived barriers to UA between respondents whose jobs involved in UA activities ($M = 3.02$; $SD = 0.81$) and those not involved ($M = 2.95$; $SD = 0.76$). A small effect was observed for this test ($d = 0.10$; Cohen, 2013). Analysis of individual items revealed statistically significant differences for just one item, 'lack of available funding for producers'. Respondents whose jobs involved in UA perceived this as a larger barrier to UA ($M = 3.58$; $SD = 1.07$) than did respondents not involved ($M = 3.26$; $SD = 1.00$), $t(205) = 2.18$, $P = 0.03$. The difference in the perceived barrier that of lack of funding between people who do and don't work on UA could be explained by the fact that LGS who work on UA are more likely to be familiar with issues with faced by people trying to develop or maintain UA operations, of which research has found that funding is a perennial obstacle.

No significant differences were observed between urban ($M = 2.99$; $SD = 0.76$) and rural ($M = 2.93$; $SD = 0.82$) respondents' overall perceived barriers to UA; $t(208) = 0.54$; $P = 0.59$. An examination of individual items revealed significant differences between rural and urban respondents' perceptions of water access and HOA restrictions as barriers. Urban respondents perceived

Table 5. Benefits of UA perceived by urban and rural respondents

Item	Urban		Rural	
	<i>M</i>	SD	<i>M</i>	SD
Provides opportunities for youth development programs	4.33	0.76	4.40	0.68
Increases food access and security	4.28	0.79	4.08	0.81
Provides opportunities for educational experiences for community members	4.26	0.74	4.23	0.69
Fosters community engagement	4.24	0.77	4.15	0.80
Improves general health and well-being of community members	4.24	0.77	4.10	0.81
Increases community members' consumption of fruits and vegetables	4.19*	0.84	3.79*	0.92
Enhances local economies	4.17	0.83	4.17	0.88
Generates social capital in communities	4.17	0.82	4.04	0.85
Generates new market opportunities for farmers	3.97	0.95	4.02	0.91
Enhances the esthetic appeal of neighborhoods	3.57	0.99	3.58	0.87
Increases property value	3.42	0.97	3.27	0.82
Increases savings for county/city agencies	3.28	0.99	3.25	0.84
Construct	4.01	0.64	3.92	0.59

* $p < 0.05$.

restrictions by HOAs as hindering UA to a greater extent than did rural respondents, which is understandable given that many rural residential areas do not have HOAs. Conversely, respondents from rural areas perceived lack of water access as a greater hindrance than did those from urban areas (see Table 6), which may be a result of the fact that many urban and suburban areas have access to municipal water sources, making water access less of an issue than it is in an area that may lack municipal services and instead relies on well-water.

Objective five: UA training topics and preferred delivery methods

Overall, respondents whose jobs involve UA perceived all informational/training topics as more useful than did respondents with jobs that are not involved, which is understandable, given that people are more likely to see information/training as useful if it can be directly applied to their work. Specifically, the most useful topics identified by respondents involved in UA were effective models other communities have used to enhance local food production ($M = 4.29$; $SD = 0.90$), evidence-based research on the impacts of local food production ($M = 4.28$; $SD = 0.95$) and environmental best practices associated with local food production ($M = 4.24$; $SD = 0.91$; see Table 7). Similarly, the most useful topics identified by respondents whose job duties did not involve UA included environmental best practices ($M = 3.94$; $SD = 1.02$) and effective models other communities have used ($M = 3.90$; $SD = 1.14$), as well as food safety measures related to local food production ($M = 3.92$; $SD = 0.97$). Finally, respondents who do not work directly with UA identified how to draft and implement zoning ordinances to support local food production as least useful ($M = 3.71$; $SD = 1.18$), whereas respondents involved in UA perceived this topic as very useful ($M = 4.10$; $SD = 1.07$; see Table 7). Although there is a difference in the perceived usefulness of information on how to draft ordinances, it is worth noting that topic was near the bottom for both groups. This finding is supported by research that has found that food policy,

particularly UA policy, is a relatively new focus for planners and local governments (Mukherji and Morales, 2010; Meenar *et al.*, 2017; Mui *et al.*, 2018). Regarding preferred methods of delivering such information or training, both groups perceived downloadable, print materials as the most useful of the methods listed, while online, live webinars as the least useful (see Table 8). This preference for downloadable print materials may reflect the fact that people working in local government may want to have access to the specific information they are looking for at the times when they are looking for it, rather than needing to attend a training event that may not be at a convenient time or may include information beyond what their specific interests.

Discussion

The general observation that Florida has increasing interest in UA and in 'local food' in general, was supported by the overall positive attitudes toward UA from respondents, irrespective of whether they are involved with UA as a part of their job or in a rural vs urban county. It is notable that there was no significant difference between those groups in whether UA was perceived to be good or bad for traditional farmers, as people often anecdotally indicate that there is a rural-urban divide in terms of attitudes toward UA and its impact on traditional farming communities.

As mentioned in several places above, the use of the USDA rural/urban designation may have impacted our ability to effectively differentiate respondents in highly urbanized areas from those who are in counties classified as 'urban' but whose specific community or municipality has a less urbanized character. Although both USDA and the US Census Bureau include urban classifications that emphasize the social and economic interconnectedness of urban areas with the more rural areas surrounding them (USDA Economic Research Service, 2013; US Census Bureau, 2020), utilizing a definition that better captures the specific rural or urban character of the area itself (separately from its connections with surrounding urban areas) may have provided deeper insight into the understanding of the knowledge, attitudes

Table 6. Barriers to UA perceived by urban and rural respondents

Item	Urban		Rural	
	<i>M</i>	SD	<i>M</i>	SD
Lack of agricultural knowledge in urban areas	3.48	1.04	3.18	1.09
Lack of available funding for local food producers	3.41	1.06	3.29	0.97
Lack of knowledge about local food production among decision-makers	3.32	1.19	3.13	1.16
Homeowners' association restrictions	3.29*	1.36	2.67*	1.31
Perceived nuisance (e.g., smell, noise and traffic)	3.21	1.10	2.91	1.08
Lack of collaboration between city- and county-level agencies	3.07	1.27	2.87	1.06
Lack of support from community residents	2.96	1.04	2.76	1.00
Restrictive policies and laws (e.g., zoning ordinances, permitting requirements and state legislation)	2.85	1.05	2.84	1.06
Land tenure and security	2.84	1.05	3.04	1.11
Lack of support from elected officials	2.75	1.14	2.98	1.20
Access to water	2.45*	1.18	2.96*	1.38
Soil contamination	2.36	1.07	2.51	1.32
Construct	2.99	0.76	2.93	0.82

* $p < 0.05$.**Table 7.** Usefulness of informational and training topics among respondents involved and not involved in UA activities

Topic	Involved ($n = 68$)		Not involved ($n = 109$)	
	<i>M</i>	SD	<i>M</i>	SD
Effective models other communities have used to enhance local food production	4.29	0.90	3.90	1.14
Evidence-based research on the impacts of local food production	4.28	0.95	3.89	1.04
Environmental best practices associated with local food production activities	4.24	0.91	3.94	1.02
Food safety measures related to local food production	4.19	0.91	3.92	0.97
Strategies for incorporating local food production into my city's/county's comprehensive plan	4.10	1.02	3.86	1.06
How to identify stakeholders for developing local food production activities	4.10	0.96	3.84	1.06
How to draft and implement zoning ordinances to support local food production	4.10	1.07	3.71	1.18
Research data pertaining to public perceptions of local food production	4.08	1.08	3.82	1.11
Definitions and terminology associated with local food production	4.07	0.97	3.65	1.09
Strategies for developing an urban agriculture ordinance in my city/county	3.93	1.11	3.71	1.12

Note. Responses collected using 5-point ordinal scale (1 = not at all useful; 5 = extremely useful).

Table 8. Preferences for methods of informational or training delivery among respondents involved and not involved in UA activities

Delivery method	Involved ($n = 70$)		Not involved ($n = 109$)	
	<i>M</i>	SD	<i>M</i>	SD
Downloadable, print materials (e.g., guides and handbooks)	4.11	1.10	3.83	1.17
Face-to-face training workshops or presentations	3.75	1.21	3.41	1.28
Recorded online videos	3.67	1.24	3.44	1.13
Online, live webinars	3.45	1.24	3.20	1.26

Note. Responses collected using 5-point ordinal scale (1 = not at all useful; 5 = extremely useful).

and perceptions of LGS in rural vs urban areas. An additional limitation of the USDA rural/urban designations—beyond classifying some less urban areas as urbanized—is that, being a binary variable, it is not fine-grained enough to gain a clear understanding of the differences in perspectives of LGS in communities from the full spectrum of types of communities—from highly urbanized cities to suburbs to small townships to completely rural communities.

Across the study population there was broad agreement in the key benefits of UA identified in the literature, with opportunities for youth development and educational experiences ranked highest, followed by increasing food access and healthy food consumption, fostering community engagement and increasing social capital. Items that were less supported related to property values, esthetic appeal of neighborhoods and savings for community agencies. As discussed above, one possible reason for the limited support of these benefits that had been identified in the literature is that the studies touting those benefit were conducted in highly urban environments such as Chicago, Baltimore and New York City (Voicu and Been, 2008; Poulsen *et al.*, 2014; Kuo and Sullivan, 2016). In addition, because interest in UA is somewhat new in Florida, LGS—as well as the public at large—may simply not be familiar enough with UA to be aware of these potential benefits. The key barriers to UA included in this survey were widely identified in the literature as being factors that limit UA activities, particularly land-tenure, restrictive policies, lack of access to water and soil contamination. Interestingly, there was substantial agreement in this study population overall—without much difference between urban and rural respondents or those working on UA or not—with them generally sharing the perspective that the primary barriers that have been identified in previous research only moderately or slightly hinder UA in their communities. Aside from two of the barriers, there were no significant differences, and the primary way that the groups differed was in their ranking of the barriers to UA in their communities.

Together the three findings of (i) generally positive attitudes, (ii) strongly agreeing that there are many potential benefits of UA and (iii) identifying potential barriers as only slightly or moderately hindering UA, indicate that there is a supportive foundation for the implementation of UA in local governments in Florida. Thus, the explanation of limited prevalence of UA policies or operations in Florida may be rooted in LGS' limited knowledge about UA, both in general and as it relates to key topics. Given that LGS acknowledged the limitations in their knowledge about UA, it is worth noting that another reason UA may not be flourishing in Florida may be LGS are not familiar with the barriers that would-be UA producers and operations may face. For example, LGS indicated that access to land and restrictive policies are only a moderate barrier to producers. However, as discussed above, studies of urban farmers have consistently found those two factors to be among the largest barriers they face. This finding may highlight a disconnect between LGS and the individuals implementing UA operations in their communities. This disconnect may be a factor in both the lack of supportive policies and the limited number of operations—UA may be subject to barriers that LGS are unaware of, and, consequently, LGS are not adopting policies to address these barriers. Although the low response rate of this study prevents us from drawing conclusions beyond this sample, it is worth noting the importance of this potential disconnect—if the people who draft and implement policies do not understand the needs of the people who are subject to those policies, then they may not understand the ways in which

those people are potentially benefitted or hindered as result of their policies. Future research to see whether this potential knowledge gap is found in the wider population could be beneficial to develop targeted education to help LGS draft and adopt policies that are more supportive of UA.

LGS did indicate that virtually all training topics would be very useful to them, which suggests an openness to learn more about various topics that could help them better support UA in their communities. In addition to the practical information that they were directly about whether they wanted, it may be beneficial for the educational materials or trainings to include some of the basic information about which LGS indicated they had limited knowledge, as well as evidence-based information regarding the barriers hindering UA and ways that they can address those barriers.

Conclusion

Our findings support the hypothesis that a lack of basic knowledge about UA is one difficulty in fostering UA in Florida; however, the low response rate prevents the ability to generalize these results beyond this sample. Despite being positively disposed toward UA, LGS in this study may not fully understand how to effectively develop and implement policies to foster UA, or understand the barriers to increasing UA in their communities. This finding may also help explain reluctance to adopt local government policies to support UA—they either aren't fully aware of various details about UA or they don't have a clear sense for the importance of and ways to draft and implement supportive policies. In the future, Extension and community organizations seeking to support UA and community food systems should provide LGS key information and enhance their knowledge of UA using downloadable print materials and face-to-face training programs.

As mentioned above, there were various ways in which the USDA rural/urban county designation may have limited the results of this study. Future research using classifications that are not binary—not merely rural vs urban—such as the USDA rural-urban continuum, which has 12 different classifications from urban to rural, could help to shed light on this topic. In addition, adopting methodologies that are used in other disciplines, such as remote sensing or spectral analysis in order to gain a clearer understanding of the more precise character of the land-use and built environment (Weeks, 2010) could be an innovative way to classify the level of urbanization of the municipalities that different LGS represent.

This study, although limited due to the response rate, does raise some interesting questions regarding the attitudes and perceptions of LGS that are worth investigating further, such as the differences in perceptions of benefits and barriers between those working in UA and those who do not. In addition, we utilized the term 'local food production' and gave an operationalized definition of UA in order to avoid expected bias, but we did not end up finding a significant difference in the perceived impact on rural vs urban communities nor the difference in perceived impact on traditional farmers. One implication of both our low response rate and these unexpected findings is that qualitative research—via interviews or focus groups—is needed to gain richer information regarding LGS' knowledge, attitudes and perceptions. A Delphi study to identify LGS' perceptions of the primary benefits and barriers would be particularly useful because our providing them with a list of benefits and barriers that have been identified by others limited our ability to identify *new* benefits and barriers. The identification of new benefits or barriers may be particularly

relevant to the Florida context, given that UA in Florida is in a nascent form, and hence may have unique benefits and barriers—indeed, it may be that some as-yet-unidentified barrier is one of the factors that has limited the development of UA in Florida.

This research has also highlighted the need for future research to better understand community residents' perceptions of UA and the needs of urban farmers. In particular, LGS' limited knowledge and experience with UA has highlighted the fact that urban farmers and community members are likely in a better position to report on the benefits and barriers to UA in communities. Bringing together the perspectives and needs of all three of these groups—LGS, community members and urban farmers—can help to identify specific types of policy mechanisms that are the easiest to adopt and have the greatest positive influence on communities. In addition, because LGS—particularly elected officials—are responsible for making decisions about how to allocate limited resources to best support their communities, research into public sentiment about UA, including not only their perceptions of benefits, but also their perceptions of its negative impacts, such as public nuisance, would help LGS adopt policies that could support UA in a way that is consistent with the preferences of their constituents.

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