Significant urban farm resources developed by the Great Lakes Urban Ag IPM Working Group

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Abstract

Urban agriculture, the ability of community members to engage in growing food, is the crux of a just urban food system. The Great Lakes Urban Ag IPM Working Group was established with support from the North Central IPM Center in 2017. The mission of the group is to create a network of university researchers and extension educators who collaborate with growers to solve production and pest management challenges on urban farms, using an integrated pest management (IPM) approach. Membership includes Extension professionals, community organizations and garden managers, partnering support agencies and farmers themselves. Through the participation of over 35 people from eight states across the region we have worked collaboratively to provide a set of tools to manage a range of crop production and pest challenges. Products created include fifteen pest cards, available in both Spanish and English, which provide identification and management recommendations. These cards have been disseminated across several states and posted online. A webinar series provided specialists the opportunity to talk about scouting and trapping for insect pests, composting with black soldier flies and a unique 360-degree virtual urban ag farm tour project. The virtual tours allow anyone to “visit” and experience the diversity of urban farms. Key production and pest management information is highlighted within the virtual tour by information icons. There is currently a library of seventeen 360-degree urban farm tours which originated in Ohio but have recently expanded to highlight urban farms in MI, IN and IL. Our group continues to build collaborations and create resources to train urban farmers in pest management. In this paper, we will share information about the resources we have made, including how to access them, and discuss the structure and function of the collaboration.

Keywords

diversity, integrated pest management, urban agriculture

Disciplines

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Presenter Information

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INTRODUCTION

Urban agriculture enterprises, particularly within the North Central region, have established themselves as viable niche business ventures at a time of shrinking Extension budgets and limited staff resources in urban centers. Often persons engaged in urban agriculture enterprises are new and beginning farmers, non-English speakers, or are from historically underserved populations (Little et al., 2019; Oberholtzer et al., 2016; Shoaf and Ingwell, 2021; Surls et al., 2015). Some of these operators/workers come to the field without any agricultural experience and need research-backed recommendations for specialty crop production and pest management issues (Oberholtzer et al., 2016; Shoaf and Ingwell, 2021). Others are growing familiar crops in new climates, such as immigrant farmers. The farms are usually considered "micro-scale" with production limited by land access and working capital (Shoaf and Ingwell, 2021). These enterprises are diverse in their cropping systems and pest pressures and experience abiotic and biotic stressors associated with urbanization (i.e., urban heat islands and fragmentation) (Shoaf and Ingwell, 2021). Although urban farms represent a smaller resource base than their conventional counterparts, they provide a significant contribution to the food system and often serve audiences that may not have access to fresh and healthy foods (Oberholtzer et al., 2012). Significant and unique in all these ways, urban growers need a unique and tailored set of resources to achieve production success.

Urban farmers often seek out training in production practices when available in their area. Yet this available training provided by urban gardening groups and not-for-profit organizations may lack the focus on scale-appropriate and researched-based information that many urban farmers are seeking (Oberholtzer, et al, 2012). In a recent needs assessment of urban farming conducted by Ingwell and Shoaf in the state of Indiana in 2021, respondents were asked where they go when searching for information to assist with farming challenges. The top three responses were Purdue Extension Educators in/near me (67.9%), farmers I know (63%), and Purdue Extension websites (61.7%). These responses highlight the progress that Extension has made to connect with urban farmers, however with the response of "My own research on the internet" was not far behind (53.1%) and a strong preference for peer learning, there is still much work to be done to help strengthen and support these networks.

For a variety of reasons, most urban farmers do not use synthetic pesticides. Many choose to implement cultural and organic methods of control (Gregory et al., 2016) that have not been traditionally incorporated into conventional IPM programs. Cultural tactics (insect exclusion practices, variety selection, mass trapping) are effective and implementable on the small scale at which most urban farms operate (less than an acre, with 38.8% working on 100-1001 square feet) (Shoaf and Ingwell, 2021). With plant pest and disease identification and management being the top two challenges faced on urban farms, there is a need to create research-backed resources tailored to urban farms, addressing both the preferred management tactics and recommendations tailored to the scale at which these farms are operating (Shoaf and Ingwell, 2021; Drake and Lawson, 2015; Surls, et. al, 2015).

Over the last decade, national urban agriculture attention has focused on larger cities away from the grain belt of the US (Little et al., 2019; Oberholtzer et al., 2016; Napawan, 2015; Surls et al., 2015). However, since the establishment of the Office of Urban Agriculture and Innovative Production in 2018 and a Federal Advisory Committee in 2022, attention has shifted to North Central metropolitan areas, acknowledging the urban agriculture work that has been happening. The USDA chose 17 cities to locate urban service centers including 6 cities in the North Central Region (Cleveland, Chicago, Grand Rapids, Detroit, Minneapolis/St. Paul, and St. Louis). Previous efforts, like the 2016 USDA Urban Agriculture Toolkit, focused on developing urban agriculture enterprises; new efforts focus on technical assistance related to infrastructure, market development, and capital investment.

Regional NIFA Regional Integrated Pest Management Centers support

The NIFA Regional Integrated Pest Management Centers were formed in 2000 to serve as a hub for multi-state partnerships and communication networks. The Regional IPM Centers have linked researchers, growers, extension educators, commodity organizations, environmental groups, pest control professionals, government agencies and others. The North Central IPM Center offers competitive funding to support multi-institution working groups to meet the IPM needs of different stakeholder groups. While some groups formed around a particular commodity area (Great Lakes Vegetable Working Group), or Crop (sunflowers) others formed around a specific issue. (school IPM). Previously the NCIPM Centers selected signature areas for grant cycles. One of the signature areas for the 2016-2018 grant cycle was urban agriculture. Several extension educators and researchers pursued the opportunity to form an urban agriculture work group to bring interested parties together to meet the unique needs of urban farmers and other stakeholders such as community gardeners and other urban agriculture service providers.

Since the inaugural meeting of the group was held in May of 2016, our membership has grown. In 2023 working group membership stood at thirty members from eight States (Minnesota, Wisconsin, Michigan, Indiana, Illinois, Ohio, Connecticut, and New York); due to a recent call-out meeting, we have welcomed seventeen more university and extension professionals to our group and added the state of Pennsylvania. Members represent extension educators, research or extension faculty, non-profit organizations, urban farmers, graduate students, and other urban agriculture advocates. The working group's mission is to connect professionals and growers to transform these connections into an impact for its stakeholders. Stakeholders include non-profit organizations, community garden leaders, urban farmers, Master Gardener Volunteers, NRCS and SWCD partners, and other organizations that support the production and dissemination of food in urban settings.

DISCUSSION, OUTPUTS & IMPACT

Outputs from the Great Lakes Urban Agriculture Integrated Pest Management Working Group (GLUA IPM WG) include human resources such as the professional network, listserv, and annual meeting and informational resources such as the urban agriculture pest cards, webinars, and 360 virtual tours of model urban farms. In the summer of 2023, The North Central IPM Centers hired a consultant to collect data on the impact of the working groups. This resulted in a publication titled "Urban AG Working Group Impact Assessment." Some data from this assessment such as interview quotations are used to describe the impact of certain outputs.

Network & Listserv

The number of extension educators and faculty researchers working within the urban agriculture realm remains low relative to the number of clients served. This makes connections leading to collaborative work imperative. The goal of the GLUA IPM WG is to work collaboratively to provide urban growers with tools to manage crop production and pest challenges. This collaborative work allows us to share best practices, discuss urban issues, and develop tailored solutions. Since its inception, strong collaborations between institutions have been developed to support this growing industry.

The working group has convened in-person and virtual annual meetings from 2016-2022 to provide networking and learning opportunities, including tours of local urban farms.

Table 1. Annual meetings with year, location, and host institution.

YEAR	LOCATION	HOST
2016	Indianapolis, IN	Purdue
2017	Chicago/ Westchester, IL,	University of Illinois Extension
2019	Flint, MI,	Michigan State University
2020	Virtual	Ohio State University
2022 (2021 delayed)	Virtual	Ohio State University
2022	Indianapolis, IN,	Purdue
2023	Grand Rapids, MI	GL Fruit & Veg Expo/Michigan State University

Member stakeholders cited these events as an opportunity to "meet people from other states and potential collaborators," and get together, provide updates, and get ideas" from people working in this space (Uden, 2023). Between meetings, we communicate via a listserv, a simple but valuable tool. Concerning the listserv, one member said, "I learned of different resources like funding opportunities and webinars, articles, and shared that information with others on the listserv" (Uden, 2023). Individuals can join the listserv here, https://go.osu.edu/gluaipmlistserv.

The next annual meeting will take place in 2024. This meeting will provide the expanding membership of the working group the opportunity to network and discuss needs in their urban agriculture communities. Working group members will be encouraged to share their work via presentations. We will also discuss the results of the previous year's accomplishments and future directions. Local stakeholders will be invited to attend. Urban farm tours will also be included, providing an opportunity for the group to talk to urban farmers about their most challenging IPM needs. The meeting typically lasts a day and a half.

Information Cards

Fourteen pest-specific information cards, and one card dedicated to natural enemies (fifteen total), have been created for urban growers and distributed to many. In print, we have produced over 200,000 copies and distributed them to urban growers across eight states.

Table 2. Quantities of information cards printed.

PEST CARDS (15)	**PRINTING QUANTITY ENG**	**PRINTING QUANTITY SPA**
Aphid (original & re-print)	15,000	2,000
Cole Caterpillars (original & re-print)	15,000	2,000
Cucumber Beetle (original & re-print)	15,000	2,000
Deer	13,000	2,000
Feral Cat	20,000	2,000
Flea Beetle (original & re-print)	15,000	2,000
Groundhog (original & re-print)	16,000	2,000
Mexican Bean Beetle	20,000	2,000
Nat Enemies	13,000	2,000
Rabbit	20,000	2,000
Spider Mite	20,000	2,000
Squash Bug	13,000	2,000
Squash Borer	13,000	2,000
Thrips	13,000	2,000
Vole (original & re-print)	15,000	2,000
Total Printing Quantities	**206,000**	**30,000**

In January 2023, the group translated these cards into Spanish and printed 30,000. The printed cards are a member and stakeholder favorite. When asked about the printed cards working group members reported, "I use them a lot! When teaching programming for beginning and continuing farmers, cards are used as resources." and another said, "A huge resource as those go to a large number of audiences. I'm really pleased that they were able to translate those into Spanish and I've distributed thousands."

The working group made these cards digitally available by adding them to the IPM Centers Resources Database, https://resources.ipmcenters.org/. Urban growers can go directly to the database and access the pest cards; participating Universities and Non-profits can post these cards

locally through their online presence (posted at Purdue University here and Ohio State University here) while keeping the resource metrics centralized.

Webinars

In 2022 the group began offering free Urban Agriculture IPM webinars. In its inaugural offering, they garnered over five hundred views across eight states; the topics of these webinars included 360-degree Tours of Model Urban Ag Farms in Ohio, Composting with Black Soldier Flies, and Scouting and Trapping. In January 2024, we offered our second round of free webinars with topics including Swede midge in Upper Midwest Urban Agriculture, Ethnic Crops, and Cover Crops.

Table 3. Urban IPM Webinars offered.

Date	Title	Presenter	Live Attendees
July 2022	360 Degree Tours of Model Urban Ag Farms in Ohio	Jim Jasinski	37
July 2022	Composting with Black Soldier Flies	Laura Ingwell	47
July 2022	Scouting and Trapping	Sam Anderson and Elizabeth Lamb	35
January 2024	Swede midge in Upper Midwest urban ag	Mary Rodgers	40
January 2024	Ethnic crops: opportunities and challenges	Jacqueline Kowalski	43
January 2024	Cover crops: in IPM practices	Fernanda Krupek	51

When asked about the webinars, one stakeholder stated, "Valuable. A way to reach people they don't normally reach, a way to network/collaborate." All webinars were recorded and are available on the North Central IPM Centers YouTube Channel, https://www.youtube.com/@ncipmc/videos.

In January 2025, the working group will offer three more free webinars on topics determined by the working group at the 2024 annual networking/planning meeting. One of these will communicate the results of the SVB trapping (described below) and the others are to be determined by the working group members.

360 Virtual Tours of Model Urban Farms

The working group began a discussion of virtual urban farm tours when Jim Jasinski presented his work creating four such virtual tours in Ohio at our 2021 annual networking meeting. At the 2022 annual meeting, the group sought funding to pursue this direction. The rationalization for this foray into virtual farm tour creation was twofold: 1) to facilitate peer-to-peer learning among urban farmers as a preferred way to learn and 2) to overcome the inability or the lack of willingness to travel beyond twenty-five miles from their current location (Shoaf and Ingwell, 2021).

Great Lakes Urban Agriculture IPM Working Group (GLUA IPM WG) set out to create nine virtual urban farm tours within the Midwest. The new tours are representative of three states (IN, IL, MI) and built on the library of Ohio tours that already existed. The urban farmers were provided with a $130 participation stipend to compensate them for their time.

Table 4. Virtual tours of model urban farms created.

Year Completed	State	City	Funding Source
2021	OH	Wooster	USDA NIFA & IPM Program
	OH	Mansfield	USDA NIFA & IPM Program
	OH	Mansfield	USDA NIFA & IPM Program
	OH	Mansfield	USDA NIFA & IPM Program
2022	OH	Cleveland	Internal OSU ANR Team Funding
	OH	Cleveland	Internal OSU ANR Team Funding
	OH	Akron	Internal OSU ANR Team Funding
	OH	Akron	Internal OSU ANR Team Funding
2023	MI	Detroit	NC IPM Centers Grant
	MI	Detroit	NC IPM Centers Grant
	MI	Detroit	NC IPM Centers Grant
	IN	Fort Wayne	NC IPM Centers Grant
	IN	Indianapolis	NC IPM Centers Grant
	IN	Indianapolis	NC IPM Centers Grant
	IL	Matteson	NC IPM Centers Grant
	IL	Chicago	NC IPM Centers Grant
	IL	Chicago	NC IPM Centers Grant

The GLUA IPM WG held a webinar event to debut one virtual tour and have Q&A with the farmer. Among attendees that provided feedback, 96% said that they would be interested in more virtual events like this featuring a virtual tour with the farmer and 92% said they would visit the website for the virtual tour for a self-guided look around the farm.

All virtual farm tours can be accessed at https://go.osu.edu/allvirtualurbanfarmtours. In addition to a 360 virtual view of the farm, the virtual farm tour includes an embedded YouTube video with a farmer introduction and icons that hold more information on IPM practices used on the farm. This summer, July 2024, the working group will create six additional virtual tours to expand the current offering and include additional locations in the region**.** These will be the final virtual tours created by the working group for the foreseeable future.

CONCLUSION & FUTURE DIRECTIONS

The working group continues to connect individuals collaborating with urban growers, growing the network. In fact, at the 2024 Urban Food Systems Symposium we gained seventeen new members. As demonstrated by the outputs detailed in this paper, the working group is innovative and productive and has had a significant impact on urban agriculture professionals and urban growers in communities across the United States.

In the future, the working group will continue to create and distribute tailored informational resources and contribute to the body of knowledge on urban agriculture pest challenges. This year the group is undertaking its first urban-focused regional monitoring program of a specific pest; in 2024 the goal is to establish a regional monitoring program for Squash Vine Borer. This urban-specific monitoring program will be an important contribution because in recent years it has become evident that SVB is more prevalent in urban growing environments and that

there is a more constant pest pressure throughout the entire growing season. Therefore, to improve the management of this pest in urban areas, we need to understand the basic biological processes of the populations.

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Literature cited

Drake, L., and Lawson, L. (2015). Best practices in community garden management to address participation, water access, and outreach. JOE*, 53.*

Gregory, M.M., Leslie, T.W. & Drinkwater, L.E. (2016). Agroecological and social characteristics of New York City community gardens: contributions to urban food security, ecosystem services, and environmental education. Urban Ecosyst., *19*, 763–794. https://doi.org/10.1007/s11252-015-0505-1

Little, N. G., McCoy, T., Wang, C. & Dill, S. P. (2019). Results of a needs assessment of urban farmers in Maryland. Journal of NACAA *June 12(1).* https://ww.nacaa.com/journal/index.php?jid=971

Napawan, N. C. (2015) Production places: evaluating communally-managed urban farms as public space. https://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=16987

Oberholtzer, L., Dimitri, C., and Schumacher, G. (2012). Linking farmers, healthy foods, and underserved consumers: exploring the impact of nutrition incentive programs on farmers and farmers' markets. JAFSCD, 2(4), 63–77. https://doi.org/10.5304/jafscd.2012.024.002

Oberholtzer, L., Dimitri, C. and Pressman, A. (2016) Urban agriculture in the United States: baseline findings of a nationwide survey. ATTRA Sustainable Agriculture. https://attra.ncat.org/publication/urban-agriculture-in-the-united-states-baseline-findings-of-a-nationwide-survey/

Regional IPM Centers. Regional Integrated Pest Management (IPM) Centers, https://www.ipmcenters.org/about/regional-ipm-centers/

Shoaf, N., and Ingwell, L. (2021) Urban agriculture: opportunities and challenges for Indiana's urban agriculturalists. Diversified Farming and Food Systems, Purdue University, https://extension.purdue.edu/anr/_teams/dffs/

Surls, R., Feenstra, G., Golden, S., Galt, R., Hardesty, S., Napawan, C., Wilen, C**.** (2015). Gearing up to support urban farming in California: preliminary results of a needs assessment. Renew. Agric. Food Syst. *30,* 33–42. doi:10.1017/S1742170514000052

Uden, T., Guffy, C. (2023) Urban agriculture working group impact assessment. Context, Partners for Advancing Agriculture.

USDA Urban Agriculture Toolkit. (2016). https://www.climatehubs.usda.gov/hubs/northeast/tools/usda-urban-agriculture-toolkit

USDA Federal Advisory Committee. (2023). https://www.usda.gov/partnerships/federal-advisory-committee-urban-ag

USDA Office of Urban Agriculture and Innovative Production. (2023). https://www.usda.gov/topics/urban/innovative-production