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## Model Integrated Pest Management Program Delivery for Community Gardeners

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## **Model Integrated Pest Management Program Delivery for Community Gardeners**

### **Abstract**

The growth of community gardens has created new opportunities for urban Extension personnel at a time when staffing resources continue to decline. To serve the integrated pest management (IPM) needs of community gardening populations, Extension educators in two urban counties developed an on-site program involving a demonstration kit and planning protocol that Extension educators, program staff, and master gardener volunteers can use to teach IPM. The program provides practical, research-based information to community gardeners, allows Extension to maintain a presence in urban centers, and provides outreach to audiences who may not have used Extension resources historically.

**Keywords:** [integrated pest management](#), [community garden](#), [urban agriculture](#), [master gardener volunteers](#)

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## **Introduction**

The number of community gardens in the United States increased by 300% between 2008 and 2013 (National Gardening Association, 2014). Community gardens contribute to neighborhood revitalization and sense of community as well as increased access to fresh produce (Bussell, Bliesner, & Pezzoli, 2017; Ohmer, Meadowcroft, Freed, & Lewis, 2009; Smith & Parpia, 2014). Growth in the number of community gardens has created new opportunities for urban Extension personnel at a time when staffing resources continue to decline. Ohio's Cuyahoga and Mahoning Counties, home to large urban centers, have over 300 community gardens collectively. Extension has been encouraged to conduct on-site workshops for community garden participants and to work with them directly on a regular basis (Drake & Lawson, 2015). Obviously, Extension brings people and ideas together (Rennekamp, 2016). One of the most successful ways Extension has done this is through on-farm field days and workshops. At these events, Extension educators work with farmers to introduce new ideas and best practices through hands-on opportunities for learning. This format is easily adjusted to provide meaningful programming for community garden participants.

In our experiences, we have noted that community gardeners attempt to accomplish integrated pest management (IPM) through do-it-yourself methods based on non-research-based information circulated via other gardeners and on social media. Some strategies include the use of "natural insecticides" and companion planting.

In other cases, community gardeners do not take any steps to manage pests or diseases (Gregory, Leslie, & Drinkwater, 2016). One recommendation of Drake and Lawson (2015) was that Extension provide education on IPM strategies geared toward gardeners' interests and in compliance with rules of their gardens, which often include restrictions on conventional pest management.

To serve the IPM needs of community gardening populations, we developed an on-site, 1.5-hr program that involves scouting techniques, a demonstration kit, and a planning protocol that Extension educators, program staff, and master gardener volunteers can use to teach IPM.

## Planning

At the beginning of a year, we choose garden workshop sites according to a number of factors. Location is a main criterion we use to ensure that all areas of a city are represented on the schedule. Other considerations are use of innovation by gardeners and reputation for teamwork. We schedule workshops throughout the growing season to highlight different concepts. For example, it is helpful to demonstrate appropriate pruning techniques early in the season. We contact garden leaders to ask permission to hold a workshop and invite the public and to ask for marketing assistance. Scheduling workshops during regularly scheduled garden meetings helps increase attendance. Dialogue with the garden leader also is important for gaining an understanding of the overall philosophy and rules of the garden so that workshops can be tailored to best suit gardeners' needs. Marketing activities include listing the workshop schedule on flyers, web pages, and social media platforms. Details included in marketing materials are

- exact location/address,
- date and time, and
- items for participants to bring (e.g., samples for diagnosis, lawn chair, notepad).

The program involves the use of preassembled kits containing supplies and activity props needed to demonstrate best practices for preventing and managing pest and disease problems in crops. Attention is paid to fitting the necessary items into a plastic tub for ease of transport. The kits also include program management items such as information sheets on how to conduct the workshops, evaluation sheets, clipboards, participation incentives, and writing instruments. A list of practices for effective IPM and associated sample kit materials are shown in Table 1.

**Table 1.**

Items Included in Kits for Demonstrating Practices Related to Integrated Pest Management

<b>Practice</b>	<b>Item to use in demonstration</b>
Scouting materials	Magnifying loupes, sweep nets, sticky traps
Watering	Rain gauge and tuna can (to use to measure 1 in. of water) Sections of soaker hoses and drip irrigation lines
Fertilization	Fertilizers in sealed bags with labels attached
Mulching	Various barrier mulch types (newspaper, cardboard, burlap, plastic)

Cultivar selection	Laminated seed catalog sheets and a key to explain seed abbreviations (particularly regarding disease resistance)
Crop rotation	Information cards with photos of vegetable plant families and rotations
Insect and disease management	Trellising and pruning equipment, empty containers of examples of organic and inorganic pesticides, laminated labels of common pesticide, personal protective equipment
Wildlife control	Sample-sized pieces of fencing, laminated photos of fencing
Season extension and insect barrier	Laminated photos of low hoops and small pieces of different weight spun-fabric row cover

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Preprogram activities also include training sessions for volunteers. These sessions, which typically last 2 hr, address cultural sensitivity, IPM principles, gardening myths, effective use of the demonstration kit, and field diagnostics.

Garden leaders are contacted 6 weeks before the scheduled event as a reminder. This contact is essential because leadership turnover is common for volunteers and staff at community organizations. Garden leaders are contacted again 1 week before the workshop as a final reminder.

## Delivery

Staff and volunteers arrive early to set up demonstration kit items on a picnic table or portable table, keeping items related to a particular concept grouped together for easy access. Participants are asked to form a semicircle around the table.

Discussion begins with defining IPM and explaining how each person's plot management affects the entire garden. The workshop presenters use visuals to place emphasis on ease of incorporation of IPM methods into the community garden. The presenters encourage participant engagement while respectfully correcting inaccurate or non-research-based information. This general discussion lasts 45 min.

The second half of the workshop centers on teaching scouting techniques and pest and disease identification. Participants are asked to volunteer to have plots scouted and problem areas identified. The workshop presenters begin each plot discussion by complimenting things done right (weed control, mulching, etc.). Then, the focus turns to fixing any issues and incorporating best management practices for the future. Plot diagnosis lasts 45 min.

Throughout the workshop, additional program staff and master gardener volunteers distribute material and collect evaluations, in addition to assisting with workshop content.

## Evaluation

Participants are asked to complete a program evaluation. The evaluation template is shown in Figure 1.

### Figure 1.

Sample Evaluation Used at Integrated Pest Management Workshops

	Yes	No
Do you know more about insect, disease, and weed management now than before this workshop?		
Would you attend another workshop led by this presenter?		
What is one tip you learned today that you will be able to use in your garden immediately?		
List one thing you wish had been discussed.		
Where do you usually get your gardening information? (You may list more than one resource.)		

Program evaluation is important for evaluating teaching, but also for identifying trends and improving our understanding of where community gardeners get information. Results are used to plan future workshops. For example, the topic of companion planting is almost always mentioned. This circumstance creates an opportunity to distinguish between research-based recommendations and folklore with regard to proven options for companion planting.

### Evidence of Success

For 2016, 96% of attendees reported a knowledge improvement. Our observations and verbal feedback from participants provided additional data. Some highlights of these data are as follows: residents gained confidence in their ability to grow productive crops; Extension master gardener volunteers felt more comfortable speaking in front of groups and improved their self-confidence in answering basic questions; residents appreciated the hands-on education; and residents valued Ohio State University Extension's visits to their neighborhoods, a situation that resulted in program requests and participation in other programs.

### Summary

Through low-cost, engaging workshops delivered via Extension staff and master gardener volunteers, Extension can provide practical research-based information to community gardeners, continue to maintain a presence in urban centers, and provide outreach to audiences who historically may not have used the services of Extension.

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