

1. Title:

Promoting IPM Strategies that Enhance Natural Enemies in Vegetable Gardens

2. Project Leaders:

Lori Brewer, Senior Extension Associate, Department of Horticulture
Steve Gabriel, Program Assistant, Department of Horticulture

3. Cooperators:

Jason Dombroskie, Insect Diagnostic Lab, Entomology
Abby Seaman, NYSIPM
Betsy Lamb, NYSIPM

4. Abstract:

CCE educators and Master Gardener Volunteers expressed a need for enhanced literacy in insect identification and resources to aid understanding and promotion of biological control strategies. We have begun a statewide educational campaign around the theme “Beneficial Insects” that would address this need and IPM priorities including: developing innovative educational materials inclusive of multiple media and languages in collaboration with Cornell experts and students; regional train-the-trainer workshops for county-based educators and volunteers; and support for CCE county programs to raise public awareness about beneficial insects and adoption of IPM strategies that enhance natural enemies in vegetable gardens.

5. Background and Justification:

In 2011 the Cornell Garden-Based Learning (CGBL) team in the Department of Horticulture visited 55 Cornell Cooperative Extension (CCE) county offices to assess needs of community horticulture staff members and Master Gardener Volunteers (MGV) who are leading programs and responding to questions related to management of residential environments. CCE educators and MGV expressed a need for enhanced literacy in insect and arthropod identification as well as additional resources to aid understanding and promotion of biological control strategies, including beneficial insects as natural enemies.

CCE county offices receive hundreds of insect samples each growing season from residents wanting management recommendations. CCE educators and MGV rely on varying amounts of quality training and resources to properly identify insects, which is the most critical step a providing an ecologically sound recommendation. Further, though they recognized the prevalent myth that most insects are garden pests, they conveyed limited confidence in effectively countering this myth as they lack full understanding of the value and function of specific beneficial insects in the garden setting.

In the winter of 2012, CGBL received an overwhelming positive response to CCE educators and MGV in an effort to promote a statewide “Soil and Compost” educational campaign for the 2012

growing season. This campaign included regional trainings with CCE educators and MGVS as well as webinars, fact sheet and additional resource development with contributions from the Cornell Waste Management Institute and Department of Crop and Soil Sciences. CGBL would like to build on this success by implementing a 2013 statewide educational campaign around the theme “Natural Enemies.” The campaign would follow a similar format of regional trainings, webinars and resource development to focus an effort on enhancing literacy among all CCE educators and volunteers in insect and arthropod identification. Furthermore, it will facilitate across the state CCE educators and volunteers access and use of the same highest quality resources to promote IPM strategies that enhance natural enemies in school, community, and backyard vegetable gardens.

We will address Community IPM priorities to develop innovative educational materials for Community IPM, to be delivered in multiple media and languages as well as educate others about IPM, through outreach.

6. Objectives:

1. Develop innovative educational materials including multiple media formats and some Spanish language materials related to insect and arthropod identification and biological control strategies to supplement existing.
2. Develop and implement a one-day train-the-trainer workshop for CCE educators and Master Gardener Volunteers (MGV) to enhance understanding and confidence in insect and arthropod identification and biological control strategies as well as approaches to raising public awareness and adoption of related IPM strategies. Collaborate with workshop participants to create a plan (logic model) for their county program to implement at least one effort to raise public awareness about beneficial insects and adoption of IPM strategies that enhance natural enemies in vegetable gardens.
3. Raise awareness about the availability of educational materials for distribution to their audiences among our CCE, Ag in the Classroom and nursery professionals networks.
4. Conduct a formative evaluation of the educational materials, train-the-trainer workshops and implementation of county plans to determine impacts on CCE educators and MGVS efforts to raise awareness and adoptions of IPM strategies.

7. Procedures:

1. Develop innovative educational materials by evaluating current resources to identify areas where additional materials or delivery approaches could improve understanding and confidence in insect and arthropod identification and biological control strategies as well as approaches to raising public awareness and adoption of related IPM strategies. This will include creating public education pieces such as “Garden designs that deter pests naturally” that our CCE programs as well as other educators and nursery people might use and distribute to clients. Further, we will contract a translator to assist in creating at least two Spanish language resources. Throughout resource develop phase we will consult with experts on current recommendation and research-based accuracy of all products. Students involved in Dilmun Hill and HORT 4940 Permaculture course will in

assist with the creation of insect sample boxes to be distributed to counties participating in workshops. Educational materials will be completed by December 2012.

2. Enhance understanding and confidence in insect and arthropod identification and biological control strategies by recruiting CCE educators and volunteers to participate in one-day workshops lead by project leaders in seven regions across the state in January and February 2013. We will aim to have at least 3 counties and 20 participants at each location. The workshops will include an introductions to new and existing resources we created in collaboration with experts; opportunities for hand-on learning and practicing teaching others; and creating a logic model to outline their effort to raise public awareness and adoption of related IPM strategies.
3. To maximize distribution of materials in our statewide educational campaign inclusive of informational webinars, e-newsletter, social media and website posting and distribution of announcement postcards to CCE educational network in Community Horticulture, Ag in the Classroom educators and retail nursery outlets.
4. A pre/post perception and knowledge survey at the train-the-trainer workshops will help determine the impact of the training and educational materials on CCE educators and volunteers understanding and confidence in insect and arthropod identification and biological control strategies as well as raising public awareness. We will also provide workshop participants with a standard survey to administer when they engage locally in education efforts so that we might gauge changes in awareness and adoption of IPM strategies among vegetable gardeners. A follow up interview after the 2013 growing season with participating county educators will offer additional qualitative data on the value of the educational material and trainings to local efforts to raise awareness and adoption of IPM strategies.

8. Results:

The kick-off to our statewide educational campaign around the theme “Beneficial Insects” was an October 9, 2012 a Natural Enemies In-service held at Cornell University. It was attended by 20 county educators representing the following 19 counties: Genesee, Jefferson, Chautauqua, Livingston, Delaware, Wayne, Chemung, Tompkins, Seneca, Wyoming, Schoharie, Tompkins, Schenectady, Erie, Onondaga, Steuben, Dutchess, Orleans, and Oneida. It feature our collaborators Jason Dombroskie, Abby Seaman and Betsy Lamb presenting research updates and diagnostic approaches as well as a tour of the Insect Diagnostic Lab and an opportunity to collect and pin insects in provided box to start county collections.

Starting in late January 2013 there will be seven regional trainings for about 38 county teams of CCE educators and Master Gardener Volunteers to attend. These are the dates, county locations and counties attending:

1. Nassau - January 22 (Nassau and Suffolk)
2. Orange - January 23 (Ulster, Dutchess, Orange, Putnam, and Sullivan)
3. Albany - February 5 (Schenectady, Rensselaer, Albany, Saratoga, Columbia and Greene)

4. Seneca - February 12 (Cayuga, Yates, Oswego, Onondaga, Seneca, Ontario, Oneida and Wayne)
5. Wyoming - February 13 (Erie, Monroe, Chautauqua, Livingston, Genesee, Orleans, Niagara, Wyoming)
6. Broome - February 20 (Broome, Tioga Tompkins, Cortland)
7. Franklin - February 25 (Warren, Franklin, Essex, Clinton, St. Lawrence)

The agenda for each of those trainings follows. Jason Dombroskie will be presenting at four with Lori Brewer. Betsy Lamb may present at the ones Jason cannot with Lori.

2013 Cornell Garden-Based Learning Regional Training for CCE Educators and Master Gardener Volunteers

Homework to do before training:

Review website **Insects in the Garden: Most benign or beneficial!** includes watching Trends in Insect Diagnostics Webinar (<http://blogs.cornell.edu/horticulture/insects/>)

10:00 – 11:00 Entomology 101/Using keys

What is an Insect?

Diversity
Life Cycles
Basic Anatomy
Using Keys

11:00 – 11:30 Meet the beneficial insects

11:30 - 12:30 Attracting beneficial insects to our garden

12:30 - 1:30 Networking LUNCH

1:30 - 2:30 Engaging this topic with a public audience

Review Factsheet: Most benign or beneficial
Key Messages: Review Website
Lesson Planning/Teaching Scenarios

2:30 – 4:00 Observation/Collection/Mounting

Importance of collection
Methods for collection & preservation
Mounting Demo/video
Practice Mounting

The content presented at these trainings will be recorded to organize into a distance learning experience for other CCE educators and MGV who were not able to attend and for use in future years.

The following fact sheets have also be developed or revised for the state educational campaign.

Insects: Most Benign or Beneficial
Basic Entomology for Gardeners
Checklist for Encouraging Beneficial Insects
Companion Planting

How to Capture and Collect Insects

Each county attending the training will also receive a wooded collection box with a template sheet of most common including beneficial insects to help them create their local boxes for diagnostic and educational uses.

Students are also assisting with the creation of educational videos. We have a draft of Basic Insect Mounting (featuring Jason Dombroskie). They will film Advanced Insect Mounting (Spreading Butterflies), Collecting and Preserving Insects, Building a Beneficial Garden and Insects: Most benign or beneficial by the end of the spring semester.

We also still plan to translate some of the resources into Spanish language. We have not decided which ones. We may focus on adding Spanish subtitles on the video. We can also link to some insect resources in Spanish language on this University of Illinois website:
http://urbanext.illinois.edu/espanol/hort_es.cfm

9. Project location(s):

Training locations and participating counties listed above. Location of demonstration gardens TBA.

10. Samples of resources developed:

All final education products and content will be featured on:
<http://blogs.cornell.edu/horticulture/insects/>