



Great Lakes Fruit, Vegetable & Farm Market EXPO

Michigan Greenhouse Growers EXPO

December 9 - 11, 2014

DeVos Place Convention Center, Grand Rapids, MI



Current Issues in Organic Fruit Production

Thursday afternoon 1:00 pm

Where: Grand Gallery (main level) Room C

MI Recertification credits: 2 (1C, COMM CORE, PRIV CORE)

CCA Credits: PM(2.0)

Moderator: Matt Grieshop, Entomology Dept., MSU

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| 1:00 pm | Progress Towards the Organic Management of Brown Marmorated Stink Bug <ul style="list-style-type: none">• Anne Nielsen, Entomology Dept., Rutgers Univ. |
| 1:50 pm | Pollinator Conservation Tactics for Organic Fruit Production <ul style="list-style-type: none">• Emily May, Entomology Dept., MSU |
| 2:10 pm | Developing Antibiotic Alternatives for Fire Blight in the North Eastern United States <ul style="list-style-type: none">• George Sundin, Plant, Soil and Microbial Sciences Dept., MSU• Matt Grieshop, Entomology Dept., MSU |
| 3:00 pm | Session Ends |

Pollinator Conservation Tactics for Organic Fruit Production

Emily May
Department of Entomology
Michigan State University
Lab website: <http://www.isaacslab.ent.msu.edu/>

Why conserve pollinators?

Many fruit and vegetable crops grown in the Great Lakes region are dependent on insect pollinators, especially the highly efficient bee pollinators, to set seed and/or fruit. Crops that are highly dependent on pollinators for economical yields include apple, cherry, pear, cranberry, blueberry, blackberry, greenhouse tomatoes, pumpkin, melon, and squash, among others. Without complete pollination, many of these plants produce small or deformed fruits. While honey bees are often brought in to supplement pollination in these crops, many farms in the Great Lakes region have a diverse and abundant wild pollinator community that can help achieve full pollination. There are many easily adopted practices to support these pollinators on farm.

Conservation strategies:

1) Ensure access to flowering resources throughout the season

Bees and other wild pollinators require sources of nectar and pollen to maintain their energy while moving among flowers and to feed their developing offspring. With intensive weed management in agricultural landscapes, these resources can be limited during the growing season.

- When possible, limit mowing to allow flowering species to reach maturity in field margins and other spaces on farm.
- Plant bee-friendly wildflowers in strips or meadows around the farm. These types of plantings have been shown to increase yields of nearby pollinator-dependent crops such as blueberry. See Resources section below for links to recommended plant lists.

2) Provide additional nesting materials for aboveground bees

While most bees nest in soil and have nesting requirements that are either unknown or difficult to supplement, some bees nest in twigs and other hollow cavities or tunnels aboveground, such as beetle tracks in standing dead wood. These nesting resources are often limited in managed landscapes, and it's easy to supplement these nesting materials and build up populations of these types of bees on farm.

- Leave old trees or logs in place in woods next to crop fields (as opposed to removing them).
- Provide additional nesting materials, such as wood blocks with narrow, deep holes drilled into them or bamboo, paper, or cardboard tubes designed for mason and leafcutter bees. Examples of these types of materials can be found in this Xerces Society handout: <http://www.xerces.org/wp-content/uploads/2009/11/tunnel-nest-management-xerces-society.pdf>.

3) Reduce exposure to bee-toxic pesticides

Bees and other pollinators will actively forage on many crops during their bloom periods. It is important to follow label directions intended to protect pollinators during this critical period. Later in the season, it is important to minimize risk to bees on farm if more toxic products – such as pyrethrins, rotenone, or spinosad – are required for pest management.

- Do not apply bee-toxic pesticides if bees are actively visiting crop flowers.
- If applications are needed during bloom, the best time to apply is in the late evening when bees are no longer foraging.
- Take the necessary steps to reduce spray drift, particularly onto open flowers in adjacent fields or field margins.
- After bloom, keep bees out of the crop field by mowing down open flowers in row middles.
- Use caution when applying bee-toxic chemistries. See the table of toxicity for common organic-approved pesticides here:
<http://www.xerces.org/wp-content/uploads/2009/12/xerces-organic-approved-pesticides-factsheet.pdf>

Resources: Michigan State University has a great website (www.nativeplants.msu.edu) with regional plant lists that give sun and moisture requirements as well as a key to the types of beneficial insects that each plant attracts. These lists are a good place to look when developing a site-specific plant list for pollinator habitat restoration. The site also includes links to helpful Extension publications, such as the recent guide to conserving native bees on farmland (<http://nativeplants.msu.edu/uploads/files/E2985ConservingNativeBees.pdf>).



Home - About - Getting Started - Plant Facts - Restoration - Resources - Regional Plant Lists

Southern Lower Peninsula

Deciding which native species to focus on can be overwhelming. To assist your selection, we have developed a list of about 50 plant species that are common to southern Lower Michigan. The list is meant as a place to start as you learn about native plants, and consider a planting of your own. Not all of these species are suitable for all applications. For more information about these species, as well as others to consider, contact your [local native plant producer](#) or see the [plant fact sheets](#) at this website.

- [Wildflowers](#)
- [Ferns](#)
- [Trees, Shrubs, Vines](#)
- [Grasses, Sedges, Rushes](#)

Wildflowers										
NATIVE PLANT NAME		FLOWERS	SUN			SIZE	MOISTURE			NOTES
Scientific	Common	color	full	part	shd	height (feet)	dry	ave	wet	(see bottom for code key)
<i>Actaea pachypoda</i>	White Baneberry	White		x	x	1-2		x		
<i>Actaea rubra</i>	Red Baneberry	White		x	x	1-2		x		
<i>Allium cepa</i>	** Nodding Wild Onion	Pink	x	x		1-2		x		