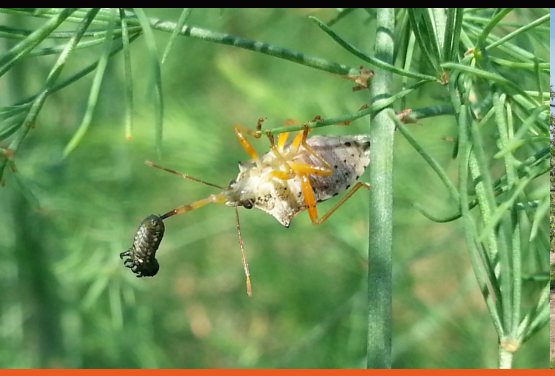
Integrated pest management, pollination essential for specialty crops

Michigan excels in growing specialty crops fueled by MSU Entomology's expertise.



A spined soldier bug feeds on an asparagus beetle larva. ***Zsofia Szendrei's*** *lab is developing systems that enhance biological controls in asparagus fields. She also has developed models that improve insecticide application timing, reducing the amount needed during a season.*

Matthew Grieshop's *three-state project is developing a specialized "irrigation" system for inputs expected to greatly improve efficiency and efficacy as well as reduce spray drift and worker exposure.*

Tree fruit IPM integrator ***Julianna Wilson*** *is working with entomologists, growers, industry representatives and extension educators to develop best management practices for protecting bees in orchards.*

Specialty crops include fruits and vegetables, tree nuts, dried fruits and nursery crops, including floriculture. These crops must be intensively cultivated and are used for food, aesthetics or medicinal purposes.

In Michigan, specialty crops represent a highly diverse and important part of the economy. Insects play beneficial and injurious roles in specialty crop production. For example, Japanese beetle larvae attack the roots of grasses and the adults feed on leaves and flowers of many food and ornamental crops, causing hundreds of millions of dollars of damage to specialty crops annually in the United States. Conversely, managed and native bees create the majority of the over $2 billion market value of apples in North America; apples cannot be produced without the pollination provided by bees.

MSU Entomology has one of the largest assemblages of specialty crop expertise in the country. This talented research and extension team joins with MSU Extension educators to develop and deliver insect management and pollination strategies not only to Michigan specialty crop producers, but throughout the Great Lakes region with a high percentage of their work supporting the vegetable and fruit industries. MSU entomologists develop management programs for conventional and organic production systems with considerable overlap in approaches where possible. The goal of the specialty crops entomology team is to develop sustainable insect management systems that maximize yield and minimize adverse environmental impacts from insecticides and other control methods. Landscape design, crop rotation and crop selection are critical elements of MSU "integrated crop pollination" management systems (see www.projecticp.org).

In addition to developing management systems, the Entomology specialty crop team have an exceptional track record of mentoring the next generation of scientists and educators with graduates accepting positions as faculty members, extension educators, private industry representatives, and insect specialists with private foundations to name a few.

More online:

MSU Enviro-weather for weather-based pest management decisions: www.enviro-weather.msu.edu

MSU Extension News for specialty crops: http://msue.anr.msu.edu/topic/info/agriculture

MSU Integrated Pest Management: http://www.ipm.msu.edu/

Photo credit: Left, Adam Ingrao, MSU. Center and Right, Kurt Stepnitz, MSU Photography.

The **Michigan State University Department of Entomology** excels in research, extension and teaching to address the issues that confront the people of Michigan, our nation and the world. MSU's entomologists look for systemic solutions across disciplines to address critical issues related to health, natural resources, food production and more.

People

275 faculty, staff, students

9 MSU Distinguished faculty

Teaching

1,400 undergrads take an entomology course each year

Students from **15 countries** since 2009

Research

Multi-year grants

with continuous funding (years = length of commitment):

- 15 years National Institutes of Health
- 9 years National Science Foundation
- 8 years U.S. Department of Energy
- 10 years Bill/Melinda Gates Foundation
- 10 years U.S. Agency for International Development
- Continuous funding from USDA including 5 year SCRI

$10 million annual research expenditures

Outreach & Extension

5,000 visitors to the Bug House each year

$1.4 million increased Michigan fruit sales for growers using MSU Enviro-weather's online pest/crop decision tools

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