

## **2012 Michigan State University IPM Program Report For NCERA**

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The Michigan State University IPM program, like many across the nation, has faced financial challenges the last few years. In spite of that, our team continues to excel in our programs and successes. We were sad to lose Dave Epstein to USDA ARS OPMP, but he now is in a position where he can use his skills to advance IPM programs across the entire nation. We were fortunate to be able to refill his position with Julianna Tuell and she has jumped right in to take over many of Dave's former roles and start some new programs. Additionally, the position of MSU IPM Coordinator was posted this spring with a deadline of applying by July 1, 2012. Larry Olsen chairs the search committee for this position.

Herein we report on a few of the projects that have been conducted in Michigan last year, and an evaluation of a small portion of our cooperative Enviro-weather program.

### **New MSU IPM Academy**

Integrated Pest Management (IPM) is relevant and continues to be of interest to Michigan's farmers. This winter a group of MSUE educators, led by Erin Lizotte, collaborated to develop a new program that cut across commodity groups and provided educational resources to serve beginner and advanced IPM users. Our goal was to increase adoption of management practices that support increased crop efficiency, minimize unnecessary pesticide use, increase employee and employer job skills, improve employer satisfaction with employees, and increase employee job satisfaction. The target audience was scouts, chemical reps, educators, students, and growers at all levels of experience.

The two-day event was held on campus and included campus specialists as well as Barry Jacobson from Montana State University and Sierra Nevada's farm manager Lau Ackerman. The first day covered vocabulary and topic areas (such as Entomology 101, Plant Physiology, and Pesticides 101) necessary to prepare participants to understand more advanced IPM concepts that were introduced on the second day during crop-specific breakout sessions. Participants were able to choose two of the following half-day crop-specific sessions; pome fruit, stone fruit, grapes, vegetables (cucurbits, cole crops, onions, celery, and carrots), hops, woody ornamentals (conifers), blueberries, vegetables (peas, beans, sweet corn, asparagus, tomatoes, and peppers), strawberries and raspberries, and woody ornamentals (deciduous trees and shrubs).

Out of the 105 participants 46 returned evaluations. These 46 participants reported directly impacting the management of 57,778 acres of agricultural land. The majority of agricultural land reported was corn (10,240 acres), soybeans (10,304 acres), stone fruit (9,677 acres), beans (6,700 acres), pome fruit (5,216 acres), wheat (5,075 acres), asparagus (5,000 acres), pumpkins (1,484 acres), blueberries (1,021 acres), evergreens (1,000 acres), and alfalfa (1,000 acres). Thirty-five respondents categorized themselves as grower/producers, 6 as consultants/scouts, 3 as landscapers, 2 as agricultural educators, and 3 people identified themselves as a chemical distributor, garden manager or recreational gardener (n=49 as some identified with more than one category).

Participants reported back that they would be implementing a number of the IPM practices they learned about at the IPM Academy during the upcoming production seasons.

- 89% (representing 56,368 acres) intend to scout for insects and diseases
- 61% (representing 55,721 acres) intend to scout for beneficial insects
- 78% (representing 56,316 acres) will reference weather modeling to make management decisions
- 67% (representing 55,933 acres) intend to only treat for pests when the economic threshold is reached, as applicable
- 48% (representing 51,290 acres) will support beneficial insect habitat to promote pest control via natural enemies
- 46% (representing 51,719 acres) will utilize the selection of pest resistant varieties or cultivars to minimize pest and disease loss
- 57% (representing 51,603 acres) will use sanitation practices (removal of inoculum, sterilizing implements, etc.) to limit disease pressure
- 57% (representing 55,725 acres) will utilize the least biologically impactful pesticide when management is needed
- 65% (representing 55,905 acres) intend to protect native pollinators (mowing before spraying, spraying at night, etc.)

Furthermore, respondents plan to use the IPM Academy as a springboard to improve their position at an existing job (39%), apply for new jobs (2%), start a business (7%), or improve the financial viability of an existing business (54%). To determine the realized impacts of the Academy, participants will be resurveyed in November.

## **Investigating horticultural methods for overcoming *Armillaria* spp. on cherry orchard sites**

Erin Lizotte is leading a 2-year project addressing the complete loss of arable stone fruit sites to *Armillaria* root rot (ARR) caused by *Armillaria* spp. Four rootstocks are being tested against the industry standard Mahaleb (*Prunus mahaleb*) rootstock for efficacy in preventing or drastically reducing tree mortality in Montmorency and Emperor Francis. Treatments are being evaluated at three grower sites with a history of ARR and active *Armillaria* spp. colonies. Effective methods to overcome soils infected with ARR would allow for further cultivation of stone fruit trees on ARR- infected land that is currently unavailable for stone fruit production. Minimizing ARR induced mortality would increase the potential for stone fruit production in Michigan. It may also provide insight into treatment methods for ornamental and forest tree species also affected by ARR.

## **New IPM Tree Fruit Integrator hired**

Last fall, Julianna Tuell ([tuelljul@msu.edu](mailto:tuelljul@msu.edu)) was hired as MSU's tree fruit integrator. She has worked for eight years with MSU entomologist Rufus Isaacs (PhD program and postdoc) on pollinators. She is setting up her program and has written six different grant proposals. Two current projects are:

- Collaborating with entomologists Rufus Isaacs and Larry Gut on pollinator attraction to Polynate, a dispensing technology used to enhance bee activity in flowering plants such as fruit and vegetable crops where bee activity is the limiting factor. Previous work showed that use of Polynate increased yields significantly; new work will explore whether it attracts native bees as well as honeybees.

- Working with obliquebanded leafrollers (OBLR) and pesticide resistance in cherries. Collaborating with researchers looking at whether OBLR phenology is different in cherries and if so, how that would affect IPM practices.



## Cover crops use soaring

Dale Mutch continues to perform research and extension with cover crops to show farmers how to improve their soil and benefit from their weed suppression properties. He provided research results that were used in the recommendations of the Midwest Cover Crops Council's new cover crops field guide (produced at Purdue with Eileen Kladviko). Several workshops were hosted with farmers. Mutch reports use of cover crops is rapidly increasing. The Star of the West company estimated cover crop acreage in Michigan's Thumb is up 25 percent. Cisco Seeds reports cover crop sales tripled last year and they expect to sell 2 million lbs of seed to cover 100,000 acres this year.

## Enviro-weather documents high use by Michigan fruit growers

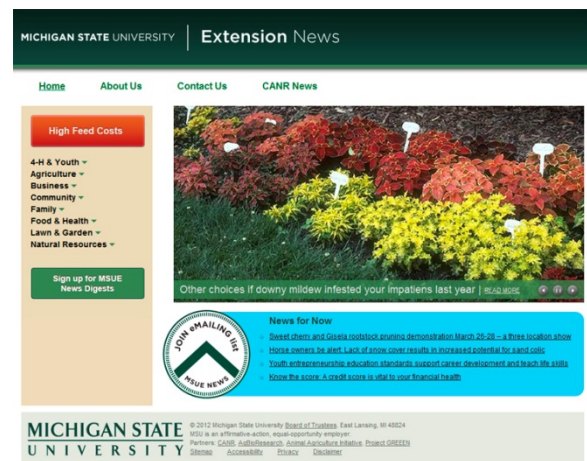
Enviro-weather ([www.enviro-weather.msu.edu](http://www.enviro-weather.msu.edu)) is MSU's website of weather-based tools for practicing IPM. In spring 2011 the Enviro-weather Program, with assistance from MSU Extension, NASS and MSU's Center for Economic Analysis conducted a survey of 1,000 tree fruit growers asking them about their use of Enviro-weather. According to survey results, the majority of large tree fruit operations in Michigan use Enviro-weather. Most users consider the disease predictive models, insect predictive models, crop management models, overnight temperatures, current weather conditions and soil conditions to be very or extremely important to their operation. Users estimated that Enviro-weather saved them 0.5 pesticide applications for each tool used, and improved fruit quality and yield. Use of Enviro-weather was estimated to reduce pesticide input by 306,238 lbs. ai per year and have a total economic impact to the state of Michigan of \$1,785,685. The Enviro-weather network includes 70 weather stations including several on Wisconsin's Door Peninsula. Larry Olsen and Joy Landis serve on Enviro-weather's development team.

## Grape newsletter for the region

Paul Jenkins provides IPM resources to Michigan grape producers through publication of the Michigan Grape and Wine Newsletter (<http://www.grapes.msu.edu/newsletters.htm>). This newsletter is published weekly or bi-weekly during the growing season from April to October. It provides producers with timely information for managing grapes, including insect pest and disease management, and vineyard management. Paul works closely with a group of campus specialists and Extension educators to produce this informative newsletter which has a distribution of approximately 600 people in the Great Lakes region.

## MSU's pest and crop news role model for new MSU Extension News website

Through the tumultuous 2010 budget process, MSU Extension prepared for double-digit budget cuts and was, at times, threatened with a total budget loss. Funding was awarded with a 15% cut and the directive to make notable changes in program delivery methods. MSUE administrators quickly toured the state to hear opinions about Extension. Michigan agriculture stakeholders declared that MSUE needed to deliver more quality, timely information in a user-friendly format. MSUE's crop and pest on-line news, the *Crop Advisory Team (CAT) Alerts*, was noted as a model of what was needed on a broader scale.



MSUE administrators decided to work with the CAT Alert editorial team to expand topics to all aspects of agriculture covered by MSUE and host a website named *MSUE News for Agriculture*. Extension ag educators committed to writing at least two articles per month.

**Goals and objectives met:**

- In the first 10 months, nearly 2,000 articles were posted, and the site was visited 194,000 times with nearly 500,000 page views.
- More than 100 media organizations, including newspapers, magazines and websites, have picked up more than 350 stories. Several of these organizations use the RSS feeds in specific categories to gather content for their own sites and in their publications. This is significantly more pick-up by media over the CAT Alert system alone.
- Within eight months following the launch, Extension administrators identified MSUE News for Ag as a significant contributor to MSUE’s recovering strength. The concept is being used as the backbone of the new MSU Extension website, which now aggregates information from all program areas (see <http://news.msue.msu.edu/>) from 4-H to business and community to natural resource topics.

**Other new communication resources with IPM features**

Along with editing the plant ag topics in MSUE News, Joy Landis and Mallory Fournier have collaborated with MSU faculty and educators in the following web projects:

- **Blueberry production website** (<http://blueberries.msu.edu/>). All of MSU’s blueberry expertise in one updated website courtesy of a mini-grant from the North Central IPM Center. The home page includes an eXtension “Ask the Expert” widget. Please encourage your blueberry growers to checkout these resources for highbush blueberries.
- **Native plants and ecosystem services** (<http://nativeplants.msu.edu/>). This updated website has expanded from featuring primarily beneficial insects (biocontrol, pollinators) to ecosystem services provided by native plants in agriculture, urban/suburban and natural settings.
- **Gardening in Michigan website** (<http://www.migarden.msu.edu/>). A couple of years ago, MSU IPM Program began active collaborations with our Master Gardener program. This website continues to expand and be center piece of that work.
- **Small scale hop production in the Great Lakes Region** (<http://hops.msu.edu/>). Recent hop shortages, growing appeal with specialty beers, and the desire for organic and locally sourced agricultural products have resulted in increasing interest in local hop production by farmers, brewers, and backyard enthusiasts. This website also includes an eXtension “Ask the Expert” widget and is suitable for sharing with growers throughout the region.

