



2003 Annual Report

MSU Integrated Pest Management Program

The IPM Report, Vol. 10, No. 1 - Spring 2004

Welcome to our report

We are making a special effort to broadly distribute this annual report of our 2003 activities to reflect our mission: promote use of Integrated Pest and Crop Management strategies to safeguard agricultural production and environmental health through education, demonstration and applied research. Please take a look at the status of our basic services and our special projects in this report. New readers may be particularly interested in the first two sections describing our staff, partnerships and funding.

Of special note, this past December representatives from MSU, agencies (EPA, NRCS, Michigan departments of Agriculture and Environmental Quality), commodity groups, growers and consultants gathered to advise us on our activities and future direction. A summary report is available at our website (www.ipm.msu.edu/strategic.htm). The strategies will be refined with input from an external review team visiting in late April 2004. If you are interested in attending some presentations by our staff, please check the agenda for times and locations at: <http://www.ipm.msu.edu/strategic-agenda.htm>

Get to know us more by visiting our home web site (www.ipm.msu.edu). Your reaction to our work is vital to us. Our contact information is on the back of this newsletter. -- Michael J. Brewer, IPM Coordinator. ♦



ICM agent Dean Krauskopf recently organized a greenhouse tour for staff and local MSU Extension staff.

MSU IPM Program: generating partnerships to bring better pest management to Michigan

The strength of the Michigan State University Integrated Pest Management (IPM) Program lies in its partnerships. Our mission is to promote development and use of IPM/ICM strategies to safeguard agricultural production and environmental health. *Thank you to our partners listed throughout this report.*

We work with **MSU field staff and campus faculty** from MSU Extension, the Michigan Agricultural Experiment Station, our co-lead departments of Entomology and Plant Pathology, and departments such as Agricultural Economics, Crop & Soil Sciences, Horticulture, and Forestry.

We support specialists and agents in **demonstration, research and education projects** and help deliver their findings to IPM practitioners. This work is often coordinated through MSU's Area of Expertise teams.

We work with **growers, consultants and their commodity groups** to solve pest management problems. We serve these stakeholders with state and federal agencies such as the Michigan Department of Agriculture and the Natural Resources Conservation Service.

Our areas of collaboration include IPM in **fruit, landscape and nursery, field crops, vegetable, and forestry plant production systems.**

The IPM Program is associated with ICM agents funded through Project GREEN. We are also allied with other programs that work in the area of pest management: the North Central Region IR-4 Program, North Central IPM Center, MSU Pesticide Education Program, MSU Diagnostic Services and MSU Agricultural Weather. Our funding sources are described in an article on page 2. Major contributors are Project GREEN; the Michigan IPM Alliance; and USDA Cooperative State Research, Education and Extension Service.

Quick introduction to the MSU IPM Program staff

As IPM Coordinator, **Michael J. Brewer** supervises the IPM Program staff and oversees its outreach and applied research activities. He works with staff and stakeholders to create programs that increase the development and implementation of IPM in Michigan. His research background includes the assessment of pest and natural enemy interactions in agricultural landscapes and compatibility of multiple tactics in pest management systems. His extension interests focus on deployment of IPM tactics in plant-based agricultural industries.

Joy Landis serves as the Assistant IPM Coordinator and Communications Manager. She is responsible for publications and

other communication resources produced including the *Crop Advisory Team (CAT) Alert* newsletters. As assistant coordinator, she shares administrative responsibilities with Michael Brewer involving organization, reporting and public relations.

David Epstein, Tree Fruit IPM Integrator, coordinates activities related to IPM fruit extension and demonstration, and takes part in applied research projects. He facilitates collaboration between the university, growers and the tree fruit industry.

Diane Brown-Rytlewski, Nursery and Landscape IPM Integrator, coordinates various IPM extension outreach and demonstration projects and partici-

pates in applied research. She serves as a liaison among the green industry, the university and other stakeholders who are advocates for increased use of IPM in Michigan's nursery and landscape industry.

Rebecca Lamb is a Communications Specialist for the IPM Program. She is the assistant editor for the *CAT Alert* newsletters and partners with Joy Landis to provide layout and design of web resources and print materials for the Program.

Dale Mutch, District Field Crops IPM Agent, is located at the W.K. Kellogg Biological Station where his area of specialty is use of cover crops and other sustainable crop management techniques to improve pest management and cropping system health. He collaborates with Extension agents to coordinate field crop IPM activities in Southwest Michigan as well as statewide demonstrations and educational opportunities in IPM.

Funding the partnership

The IPM Program draws on diverse sources of funding. Two key sources are federal IPM funds through USDA-CSREES and Michigan's Project GREEN. In particular, our integrator positions are funded in tandem with Project GREEN and industry. These industry groups include the Michigan Nursery and Landscape Association for our nursery/landscape integrator and the Michigan Apple Committee, Cherry Marketing Institute, and Gerber Products for the tree fruit integrator.

Our field crop IPM agent is supported through a partnership with the Michigan Agricultural Experiment Station (MAES), MSU Extension, and the MSU Kellogg Biological Station. A position for an Extension District Fruit IPM Agent jointly funded by the MSU IPM Program, MSU Extension, MAES, the Cherry Marketing Institute, and a USDA CSREES grant (Tart cherry RAMP) is being hired spring 2004.

	2003
Federal IPM USDA-CSREES	\$179,000
Federal project grants (IPM staff as PI's)	\$201,000
Federal project grants (IPM staff as team members)	\$117,000
Project GREEN salaries/operating	\$204,000
Project GREEN competitive grants (IPM staff as PI's)	\$109,000
Project GREEN competitive grants (IPM staff as team members)	\$188,000
State agency project grants (IPM staff as PI's)	\$7,000
State agency project grants (IPM staff as team members)	\$11,200
Other sources - industry, private organizations (IPM staff as PI's)	\$146,600
Other sources - industry, private organizations (IPM staff as team members)	\$63,000

Integrated Crop Management agents funded through Project GREEN

During 2003, the IPM Program began meeting through regular conference calls with the Integrated Crop Management (ICM) agents to more closely share ideas and collaborate on projects. ICM Agent Mira Danilovich gave us this report, which helps describe how the work of ICM agents overlaps with that of the IPM Program. "As part of our winter programming, I did several presentations discussing the integration of weather network and scouting information as a base for modeling and predicting scab and fireblight infection periods and insect outbreaks. Growers have learned how to implement and use this information as a tool in manag-

ing protection programs on their farms.” Mira and the other ICM agents provide regular field reports for the *Crop Advisory Team Alert* newsletters published by the IPM Program.

Jim Breinling is County Extension Director for Mason County and also serves as the West Central Vegetable ICM agent based in the Newaygo County Extension office. Jim coordinates with growers, agents and campus specialists to conduct ICM projects on a number of vegetable crops.

Amy Irish-Brown, District Fruit and Vegetable ICM Agent, is located at the Clarksville Horticultural Experiment Station. She organizes fruit ICM activities in the west region of the state and partners with Jim Breinling in working with the vegetable industry. In 2003, Amy was instrumental in developing curricu-



Apple orchard scouts get hands-on diagnostics training at the Clarksville Horticultural Experiment Station.

lum and publicity as well as teaching at the scout apple IPM training program (more about this program on page 6.)

Dean Krauskopf, Integrated Crop Management Agent in Southeast Michigan, is responsible for working with the greenhouse industry in 13 counties centered around Metropolitan Detroit and the sod industry across the state. He edits the *Greenhouse Update* newsletter, which is sent to more than 400 members of the

greenhouse industry, Extension, allied trades and trade press in Michigan and surrounding states. Twenty-one issues of the *Greenhouse Update* were published in 2003; primarily in the spring bedding plant season but also whenever warranted by pest or disease outbreaks.

Jill O'Donnell, Statewide Christmas Tree ICM Agent,

works out of the Wexford County MSU Extension office. Jill coordinates ICM programs for the growers who generate annual production of 3.2 million Christmas trees throughout Michigan.

Mira Danilovich, District Horticulture/Marketing Fruit ICM Agent, is based at the Oceana County MSU Extension office. She provides information, training and resource programs for fruit growers in Oceana, Mason and Manistee Counties. ♦

Increasing adoption of IPM through Farm Bill conservation programs

The goal of the *Putting the Farm Bill to Work* project is to increase the use of IPM by encouraging growers to apply for financial incentives through USDA Natural Resources Conservation Service (NRCS) conservation programs. MSU IPM Program Coordinator Michael Brewer worked with Larry Elworth (Center for Agricultural Partnerships) and Assistant IPM Coordinator Joy Landis to develop an action plan that would persuade more specialty crop growers to apply to the incentive programs. The plan brings together state agencies, NRCS, MSU Extension

and commodity groups to address growers' needs and the interest in developing the IPM portion of the conservation programs.

Information in the 2002 Farm Bill and conference report indicated a need to increase NRCS conservation program emphasis on pest and affiliated crop management practices as a means to address water, air and soil resource concerns. These documents asked NRCS to promote practices such as pest management and pesticide use, residue management, nutrient management, and invasive species management. The first year for

Partners

MSU Extension
Project GREEN
MSU Departments - Agricultural Economics, Entomology
The Center for Agricultural Partnerships
Michigan IPM Alliance
Cherry Marketing Institute
Michigan Asparagus Advisory Board
Michigan Nursery and Landscape Association
Gerber Products

paying contracts under the new Farm Bill was 2003. In Michigan, 1.1 percent of the 2003

Environmental Quality Incentives Program (EQIP) budget for grower contracts funded pest management practices. This is slightly higher than in 2002 (1.02 percent), and somewhat less than the average across the last Farm Bill cycle (1.3 percent average for 1997 through 2002). For other related land management practices the percentages were plant residue management (1.2), vegetative management in cropland (0.16) and vegetative management adjacent to cropland (0.0002).

One of the key objectives for *Putting the Farm Bill to Work* has been to increase grower awareness of NRCS conservation programs and to work with NRCS staff in seeing the challenges growers face with pest management and conservation practices. Toward this objective, we sponsored three work sessions with growers, NRCS staff and MSU Extension personnel; made five presentations to growers at MSU Extension and commodity educational programs including the Great Lakes Fruit, Vegetable, and Marketing Expo and the Great Lakes Trade Expo; and have planned a pest management course for spring 2004 to update NRCS and Michigan Department of Agriculture staff on IPM practices. We also interviewed growers who were



IPM Program's Rebecca Lamb and Mike Brewer visit with asparagus grower Dick Walsworth about his experiences with EQIP.

previously involved in EQIP about its benefits as a means to encourage new applicants. These interviews can be read at the MSU IPM Program web site: <http://www.ipm.msu.edu/farmbill.htm>

In addition to awareness and training activities, the project partners actively worked with NRCS on program modifications that would broaden grower participation especially in the area of pest management. We focused on suggesting modifications to EQIP, which is a key ongoing program for farmers, and on providing comment to the developing Conservation Security Program (CSP). Several revisions to EQIP have been recommended that will increase growers' ability to use IPM techniques to address key Michigan resource concerns. These recommendations include modifying the ranking system for selecting grower applications,

increasing incentive payment rates to levels that promote using pest monitoring services, and offering additional payments to encourage adoption of advanced IPM techniques such as using reduced-risk pesticides and biologically-based pest management techniques. Mark Whalon (Department of Entomology) is on a detail assignment to work with NRCS national staff on related issues.

The Michigan Technical Committee has recommended and the State Conservationist has approved modifying the selection criteria and the base incentive structure to encourage pest monitoring. A new incentive structure that promotes use of advanced IPM techniques was recognized as important in enhancing environmental benefit and will be considered for 2005.

To measure the effects of our 2003 efforts, the Center for Agricultural Partnerships will track changes in grower participation in pilot areas of Michigan during 2004. The Center has contracted with three pest management consultants to work with NRCS to identify growers to apply to the 2004 program. We have recommended that NRCS utilize their Technical Service Provider system to sponsor more pest management consultants to provide this service in the future.

The incentive-based stimulus promoted by the *Putting the Farm Bill to Work* program complements research and extension activities in IPM conducted at Michigan State University as supported by USDA CSREES, Michigan's Project GREEN, and Michigan's plant-based industries. We look forward to more grower participation in NRCS conservation programs and more positive grower experiences in using IPM. ♦

State and federal core budget update

There are many public programs and services deserving support during these fiscally challenging times. Your kind support of MSU Extension and the Michigan Agricultural Experiment Station during last fall's state budgetary deliberations was greatly appreciated.

On the federal front, several of the MSU pest management programs recently absorbed a 10 percent budget cut for FY04. Deliberations on restoring cuts to 33 line items affecting pest management and other MSU Extension programs continues. House members have provided comment on the cuts at: http://www.nasulgc-bac.com/documents/FY2005/house_2004.pdf

Emerald ash borer and alternatives to methyl bromide lead issues for many in the green industry

The emerald ash borer (EAB) has continued to spread throughout Michigan requiring MSU Extension to build a steady stream of information about managing this invasive species. In Michigan, at least 700 million ash trees in forests and urban settings are at risk. Nursery and Landscape IPM Integrator Diane Brown-Rytlewski is partnering with agents, specialists and industry professionals to develop reliable tools to predict adult EAB emergence and activity that will enable homeowners and professionals to accurately time management strategies and improve their efficacy. She monitored emergence of adult EAB from 20 green ash trees at a site in Ann Arbor from the first week in May through the end of August. Bloom times and corresponding degree-day accumulations for a number of

flowering trees, shrubs and herbaceous perennials were recorded during the same period at four locations. Relating EAB activity to degree-day accumulation and bloom time of common landscape plants will better determine when treatments should be applied and when infested wood can be safely transported out of quarantined areas.

To further education in the fight against EAB, Diane also teamed up with IPM Communications Specialist Rebecca Lamb to write and publish a key to help people correctly identify ash trees and avoid unnecessarily treating or cutting down other trees. The Extension bulletin, *Distinguishing Ash from other Common Trees*, contains text with photos and drawings of leaves, bark, and other distinguishing characteristics of common trees. Readers can learn how to determine if the tree is an ash or species that is not a host of EAB such as elm, hickory, black walnut, European mountainash and boxelder. Over 45,000 copies of the bulletin were printed, and it is available on several websites.

Diane also trained more than 100 Master Gardeners how to

Diane Brown-Rytlewski discusses emerald ash borer detection with a cooperator.



identify an EAB infestation. These Master Gardeners will work with Extension agents to help the public and the landscape industry grapple with EAB.

The loss of methyl bromide in 2005 will impact many sectors of agriculture including the nursery industry. Diane and Michael Brewer serve as members of the Michigan Methyl Bromide Alternatives Task Force. Diane, with support from Project GREEN and Task Force members has prepared critical use exemption proposals and worked with an agricultural economist to prepare a Critical Use Exemption proposal (CUE) for the Michigan field grown herbaceous perennial growers. They have also provided updated research information for the Michigan Seedling Growers CUE proposal. In addition, Diane organized an EPA Methyl Bromide CUE stakeholder meeting to assist applicants with the 2003 application process, provide guidance to 2002 recipients, and discuss options allocating methyl bromide under the CUE.

In addition to her work with critical use exemptions, Diane organized a team in obtaining a methyl bromide alternatives research and education/outreach grant that includes the areas of economics, soil-borne disease management, weed management research and outreach education. The \$370,000 grant, awarded in September 2003, runs for three years and involves collaboration with campus specialists in four departments, Extension agents and industry cooperators.

Some other highlights produced by Diane and her colleagues include:

- ♦ Publishing a second edition of *The Pocket IPM Scouting Guide for Woody Landscape Plants*.

Partners

MSU Extension
Michigan Agricultural Experiment Station
Project GREEN
MSU Departments – Crop & Soil Sciences, Entomology, Forestry, Geography, Horticulture, Plant Pathology
Michigan Department of Agriculture
Michigan IPM Alliance
Michigan Nursery and Landscape Association
EPA Region V
Applewood Garden
St. Joseph's Hospital – Ann Arbor
Twixwood Nursery
Sawyer Nursery
Walter's Gardens
Alpha Nurseries, Inc.
Country View Nursery
Engel Nursery
Hendrix and Dail
Huggett Sod Farm, Inc.

The first printing of 3,500 sold out, and a new edition with updated information about EAB was printed.

♦ Developing and delivering two new presentations for industry. One emphasized using IPM for herbaceous perennials in the landscape and was presented to approximately 260 industry professionals. The second presentation, given to 70 lawn care professionals, taught how to diagnose plant health problems in the landscape.

♦ Working cooperatively with members of the MSU Ornamentals Area of Expertise (AoE) team (<http://www.msue.msu.edu/aoe/ornamental/index.htm>) and other campus researchers to develop and edit a publication for industry featuring MSU's 2003 nursery and landscape research projects and educational programs. This year, the publication was produced jointly with the Christmas tree Area of Expertise team (<http://www.msue.msu.edu/aoe/xmas/index.htm>) and expanded to include their research. The 80-page publication was sent out to more than 2,000 nursery and landscape businesses, Christmas tree growers, industry professionals and university Extension educators. Subject editors were Diane and Jill O'Donnell (ICM agent), and IPM Communications Specialists Rebecca Lamb was responsible for layout and design of the report. ♦

www.msue.msu.edu/aoe/xmas/index.htm) and expanded to include their research. The 80-page publication was sent out to more than 2,000 nursery and landscape businesses, Christmas tree growers, industry professionals and university Extension educators. Subject editors were Diane and Jill O'Donnell (ICM agent), and IPM Communications Specialists Rebecca Lamb was responsible for layout and design of the report. ♦

Advanced IPM in fruit requires knowledgeable scouting

Pest management programs have become increasingly complex with the development of novel technologies and pesticides. Along with supporting the work of tree fruit researchers, integrator David Epstein has collaborated to bring more training and resources for scouting to growers and consultants. During 2003, this included production of an apple orchard scouting DVD and a training program for scouts.

To write and produce the DVD, Epstein brought together a team of growers, consultants, MSU specialists and a professional production company. The result is an informative 90-minute presentation in the many aspects of scouting. The DVD is divided into 21 distinct modules covering topics from choosing a weather monitoring system to in-depth discussions on degree-day models and monitoring primary disease and insect pests. The DVD can be viewed in one sitting, but is designed more for those who want to learn about specific topics at any point during the growing season by simply choosing the desired tracks from the DVD menu. This format should be



particularly attractive to people who learn best through seeing and hearing demonstrations of information.

One of the goals of the team was to provide new scouts with the opportunity to experience the changes that occur in an orchard over a complete growing season before actually setting foot in the orchard. The introductory sections of the DVD explain what a scouting program entails, how to prepare one for the upcoming growing season, and the ins and outs of weather monitoring. The next six modules are on scouting throughout the season from green tip through pre-harvest. The DVD

concludes with ten modules featuring detailed topics.

The DVD compliments the information in the apple pocket scouting guide that was produced in 2000. Growers can watch the DVD, plan 2004's IPM scouting program, use the pocket guide in the truck or orchard for easy reference and then return to the DVD for management advice or a review of tactics.

Epstein also organized a team of MSU researchers, Extension specialists and agents to provide IPM scout training and a cooperate system among growers and the industry to establish the necessary infrastructure to keep well trained scouts working within the system. A new scout training certificate program is now available that combines classroom, laboratory and field training for a hands-on educational experience. The three modules, offered over six months, are geared toward on-farm employees and family members, members of farm communities, current and future independent crop consultants, and agricultural chemical company field representatives. During 2003, the program certified 18 students.

Partners

MSU Extension
Michigan Agricultural Experiment
Station – Northwest Michigan
Horticultural Research Station,
Southwest Michigan Research and
Extension Center
Project GREEN
MSU Departments – Agricultural
Economics, Crop & Soil Sciences,
Entomology, Geography,
Horticulture, Plant Pathology
Michigan Department of Agriculture
Michigan IPM Alliance
Cherry Marketing Institute
Michigan Apple Research Committee
National Grape Cooperative
Michigan Grape and Wine Industry
Council
Gerber Products
West Central Michigan Crop
Management Association
HortSystems
Murray Pest Management
Bel Lago Winery
Al-Mar Orchards
American Farmland Trust
Haley-McGuinness Consulting Group
Northwest Michigan Integrated Fruit
Systems Think Tank
CSIRO Australia
Center for Agricultural Partnerships

To address the concern that scouts spend too much time driving between farms to scout a small portion of each farm, project members organized nearby farms into a collective that employs the same scout. These growers also agree to have the scout monitor a larger portion of each farm. In the past, many growers hired a consultant to scout one small block of an orchard and then made decisions for the entire farm based on conditions in that smaller area. Information gathered from a small sample area does not accurately reflect what is happening across the farm. Six grower cooperatives (19 individual farms) were established in 2003, resulting in a thorough IPM monitoring program

being implemented on over 900 acres of apple and cherry.

Other key projects for David and his collaborators included:

- ♦ Working with researchers on projects such as development of metrics for orchard functional ecology; mating disruption for controlling moth pests; timing and efficacy of new insecticide chemistries; deployment of attracticidal spheres for fruit flies; deployment of new monitoring systems for plum curculio; use of parasitoids and granulosis virus for biological control of codling moth; and orchard ground floor management and its effects on tree nutrition, growth and yield, pest management and soil quality.

- ♦ Publishing the findings from six years of research into the use of groundcovers and mulches in tart cherry orchards. Communications Manager Joy Landis worked with the author team to develop their information into an Extension bulletin that concisely delivers the information to growers. IPM Agent Dale Mutch was a cooperator in the research bringing his knowledge of cover crops into orchard floor management. The bulletin is E2890, *Cherry orchard floor management: Opportunities to improve profit and stewardship*.

David worked closely with former Fruit IPM Agent Gary Thornton on many of the above

projects. Gary supervised PestNet, a weather station data distribution network in cooperation with local consultants. Leaf wetness reports were emailed or faxed out to over 200 growers throughout the state. The reports covered apple scab, cherry leaf spot, grape black rot, fireblight, codling moth, oblique-banded leafroller and plum curculio.

Gary and David also organized information to create a poster-size tart cherry pest guide calendar for growers and consultants. This poster helps track when specific pests may be present in a cherry orchard throughout the growing season.

Grape growers also received some new tools for scouting and vineyard care. Joy Landis worked with Entomologist Rufus Isaacs and Plant Pathologist Annemiek Schilder to publish a pocket-sized guide for scouting vineyards. The guide was written for use throughout the North Central and Eastern U.S. The National Grape Cooperative purchased 1,200 copies for its juice grape growers. Joy is also working with grape specialists, agents and the juice grape and wine industry in developing a website for growers. It features pest management and cultural practices for better production. It is being introduced in April 2004 at: <http://grapes.msu.edu> ♦



Jim Nugent joins IPM's David Epstein during an orchard training session. Jim is the coordinator of the Northwest Michigan Horticultural Research Station.

Bringing the benefits of cover crops to Michigan growers

In 2003 Field Crop IPM Agent Dale Mutch worked with several different teams to secure funding for research and extension activities related to sustainable approaches to pest management using cover crops and other crop management techniques.

During 2003, Dale and colleagues began a three-year project funded through a USDA Sustainable Agriculture grant to study weed control systems at Kellogg Biological Station in organic corn and soybeans. Dale was the project investigator and led a newly formed organic advisory farmer team in designing these systems.

Also in 2003, a grant was received from the Sugar Beet Advancement Committee to evaluate oilseed radish varieties for sugar beet production systems. One on-farm study with MSU nematologist Dr. George Bird evaluated the influence of four oilseed radish varieties on sugar beet cyst nematode. Two other on-farm studies evaluated the influence of nitrogen on the growth of oilseed radish.

Partners

MSU Extension
Michigan Agricultural Experiment Station – W.K. Kellogg Biological Station, Southwest Michigan Research and Extension Center
Project GREEN
MSU Departments – Agricultural Economics, Agricultural Engineering, Crop & Soil Sciences, Entomology, Horticulture, Plant Pathology, Resource Development
Michigan Department of Agriculture
USDA Sustainable Agriculture Sugar Beet Advancement Committee
Corn Marketing Program of Michigan
Michigan Soybean Promotion Committee

Dale also continues to work with faculty in Horticulture and Plant Pathology using cover crops to reduce inputs on tomato and summer squash. He received a Southwest Michigan Research Extension Center grant to work on this project and also secured a Project GREEN grant to initiate several on-farm projects using cover crops to bio-suppress phytophthora root rot. He co-authored

a submitted publication to *Horticulture Technology* about this work.

Dale again chaired the On-Farm Research/Demonstration bulletin produced by MSU's Field Crop Area of Expertise (AoE) team (<http://www.canr.msu.edu/flcrp/>). The publication highlights the AoE's research and extension efforts. He obtained funding from the Corn Marketing Program of Michigan and the Michigan Soybean Promotion Committee to support this publication.

To increase the resources available for Michigan growers about cover crops, Dale joined two faculty members in publishing three MSU Extension bulletins in 2003. *No-Till Drilling Cover Crops After Wheat Harvest And Their Influence On Next Season's Corn* (E-2897) was developed with Dr. Kurt Thelen (MSU Crop & Soil Sciences Dept.). He also collaborated with Dr. Sieglinda Snapp (MSU Depts. of Horticulture and Crop & Soil Sciences) to publish *Cover Crop Choices for Michigan* (E-2884) and *Cover Crop Choices for Michigan Vegetables* (E-2896). ♦

CAT Alerts continue to provide in-season IPM advice

A key role of the MSU IPM Program is to disseminate information needed by IPM practitioners. Our *Crop Advisory Team (CAT) Alert* newsletters are tailored to the specific needs of each growing season. Communications Manager Joy Landis and Specialist Rebecca Lamb (pictured at right) oversee the newsletter program



and its production. With over 100 specialists and agents providing their expertise, we publish five editions of the newsletter – fruit, vegetable, field crop, landscape, and greenhouse. The greenhouse edition produces 9 to 11 issues on the Internet, while the other four editions publish 18 to 20 issues in print and

Continued on next page

Partners

MSU Extension
Michigan Agricultural Experiment Station
Project GREEN
Michigan Department of Agriculture
MSU Departments – Crop & Soil Sciences, Entomology, Forestry, Geography, Horticulture, Plant Pathology
MSU Diagnostic Services

Please see the back page of the *Alert* newsletters for the names of specific contributors.

More Internet usage drives our growing web sites

Since 1996, the MSU IPM Program web site has offered newsletters, search engines, project reports, and other information about IPM in Michigan and the North Central region. Joy Landis manages the web site with page development assistance by Rebecca Lamb. Growers and other IPM practitioners are increasingly turning to the Internet for information. In Michigan, farm access to the Internet increased from 28 percent in 1999 to 48 percent in 2001 according to a USDA survey (USDA NASS 2001). Unlike print resources, websites are easy to update and are an inexpensive means to provide color photos and text on a subject.

CAT Alerts -- continued

web format. These newsletters are especially strong at addressing new pest problems, such as emerald ash borer or soybean aphid, and new products and IPM methods. They provide weekly data for comparison such as a landscape phenology, fruit growth stages from around the state, and European corn borer trap catches.

In 2003, we surveyed our greenhouse edition readers and asked them to rank the overall quality and usefulness of the newsletter. On a scale of 1-5 with 5 indicating "excellent" and 1 indicating "poor," the response showed:

- 16.2% ranked the greenhouse edition a 5,
- 66.2% ranked it a 4,
- 12.2% indicated 3,
- 4.1% indicated 2, and
- 1.4% ranked it 1.

CAT Alert issues and more information about the newsletters are available on-line at: <http://www.ipm.msu.edu/aboutcat.htm>. ♦

<p>Partners</p> <p>MSU Extension Michigan Agricultural Experiment Station – Southwest Michigan Research and Extension Center Project GREEN</p>	<p>Michigan Department of Agriculture MSU Departments – Crop & Soil Sciences, Entomology, Forestry, Geography, Horticulture, Plant Pathology Center for Agricultural Partnerships National Grape Cooperative Michigan Grape and Wine Industry Council</p>
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New Internet efforts by the IPM Program in 2003

♦ A web site to encourage specialty crop growers to apply for incentive payments for IPM through the Environmental Quality Incentives Program: <http://www.ipm.msu.edu/farbill.htm>

♦ A web site for Michigan wine and juice grape growers featuring a range of vineyard and pest information for better production: <http://grapes.msu.edu/>

♦ A web site about identification and management of the invasive species garlic mustard: <http://www.ipm.msu.edu/garlicmustard.htm>

MSU IPM Program home page: <http://www.ipm.msu.edu>

Staying in touch with stakeholders and policy-makers

The IPM Program benefits from support from a wide base of stakeholders. It is also within our mission to keep policymakers and other decision-makers informed on the challenges of practicing IPM. Each year we have several activities designed to keep us connected to these valuable partners.

We participate in the annual Michigan IPM Alliance Decision-makers' tour. In 2003, officials, primarily from EPA and USDA, visited fruit, vegetable and ornamental crop farms to learn about efforts to practice environmentally friendly IPM strategies that reduce reliance on broad-spectrum pesticides. They also visited Gerber Products to hear about the company's partnership with its growers to ensure safe, high quality produce is harvested for baby food production.

We publish the *IPM Report* newsletter twice a year. It is a key tool for providing summarized information about our activities. The newsletter is mailed to legislators and others working for state agencies, IPM researchers and Extension workers, our counterparts at other land grant

universities and the news media. The issues are available on-line at: <http://www.ipm.msu.edu/PubsNewsltr.htm>

Every year the IPM Program participates in exhibits, posters and presentation of educational programs at commodity expos and shows. In 2003, these included exhibits at major shows such as the Great Lakes Fruit, Vegetable and Farm Market Expo (over 3,000 participants), the Great Lakes Trade Expo hosted by the Michigan Nursery and Landscape Association (over 5,000 participants), MSU's Ag Expo and smaller commodity specific meetings within the state. This year exhibits highlighted the *Crop Advisory Team Alert* newsletters and our new activities to introduce

more fruit and vegetable growers to the incentives-based federal voluntary programs, focusing on the USDA NRCS incentives program EQIP. We also increased the IPM Program's representation by partnering with other programs to include our materials in their exhibits at meetings where we could not attend. Staff representing MSU Diagnostic Services and MSU departments with pest management expertise featured the connections between our programs in these interdisciplinary displays. ♦

Affiliated MSU Services

MSU provides a suite of pest and crop management services. Please visit on-line:

- ♦ **MSU Diagnostic Services**
<http://www.cips.msu.edu/diagnostics/>
- ♦ **NC Regional IPM Center**
<http://www.ncpmc.org/>
- ♦ **Pesticide Education Program**
<http://www.pested.msu.edu/>
- ♦ **Agricultural Weather**
<http://www.agweather.geo.msu.edu>



MSU IPM Program on display at the 2003 Great Lakes Fruit, Vegetable and Farm Market Expo in Grand Rapids, Michigan.

IPM resources from the MSU Extension Bulletin Office

Pocket-sized scouting guides

These plastic-coated scouting guides fit easily into your pocket for field use. With color pictures and descriptions, they help identify insect and disease pests, pest damage and beneficial species.



Fruit Crop Ecology and Management book

This book discusses growing fruit with attention to the system that connects soil, plants, animals, humans, landscapes and the atmosphere. Readers will learn how these factors interact in a changing environment where it is impossible to change one aspect of a farming system without affecting others. The 104-page soft-bound book contains many color photos and diagrams.

A Practical Guide to Scouting Apple Orchards (DVD format)

This DVD is designed to give apple growers and consultants easy access to information that helps demystify the pest management decision-making process. The 90-minute DVD is divided into 21 modules covering topics from choosing a weather monitoring system to discussions on degree-day models and monitoring primary disease and insect pests.

Distinguishing Ash From Other Common Trees

This publication was developed to help homeowners and others concerned about emerald ash borer. Photos with identification tips will help you detect if your tree is an ash and therefore susceptible to borer infestation.

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The IPM Report

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MSU IPM Program 2003 Annual Report

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