



# *Pesticide Notes*

A bi-monthly newsletter from the  
**Michigan State University**  
**Pesticide Education Program**



**Vol XII, Number 6, November - December 1999**

## **In This Issue**

### **Feature Article**

Small Hive Beetles Now Found in Michigan ..... 2

### **Chemical Update**

Residue Tolerances ..... 4

Label Additions/Changes ..... 4

Label Deletions/Cancellations ..... 5

New Registrations ..... 5

Section 18's and 24(c)'s ..... 5

Miscellaneous ..... 5

### **News Extras**

IR-4 and Pest Control Products for Minor Crops: A Success Story ..... 6

Status of Organic Foods in Michigan Grocery Stores ..... 7

Monarch/*Bt* Pollen Issue Discussed in Chicago ..... 8

New Staff at MSU Pesticide Education Program ..... 9

**Pesticide Applicator Recertification Seminars ..... 9**

**Pesticide Education and PIAP Staff Directory ..... 11**



## Small Hive Beetle Now Found in Michigan

*Dr. Zachary Huang, Michigan State University and Mike Hansen, Michigan Department of Agriculture*

---

In May, 1998, a Florida beekeeper presented the Florida Honeybee Technical Committee with a beetle he had been finding in his colonies for more than a year. Florida officials sent the beetle to the Smithsonian for identification. With assistance from South Africa, Smithsonian entomologists identified the new pest as the small hive beetle, *Aethina tumida*. Soon after this initial identification the beetle was found in Georgia and South Carolina. North Carolina reported the beetle was established in late 1998.

In early spring of 1999, Minnesota reported a find of small hive beetle in colonies of bees that had overwintered in Minnesota. Ohio was infested as a result of packaged bees from a South Carolina firm that had treated for small hive beetle this spring. New Jersey found small hive beetle on a truckload of bees shipped in for blueberry pollination.

On August 15, a SW Michigan beekeeper notified the Region 5 staff that small hive beetle had been found in Michigan. On August 17, MDA verbally confirmed that small hive beetle is now present in at least 5 commercial beekeeping operations in SW Michigan. These firms are representative of Michigan's beekeeping industry in that they pollinate crops along the west coast of the state throughout the spring and early summer and set the bees out to collect a honey crop in northern Lower Michigan. Zachary Huang did some preliminary surveys and found that the beetles were confined in one honey house. Surveys of 20 colonies in 10 apiaries did not detect any larvae or adult beetles.

During the spring of 1999, 22 beekeepers brought more than 30,000 colonies of honeybees from Florida based on health certificates written by the Florida Department of Agriculture and Consumer Services. It would be safe to estimate that a similar number of colonies, packages, and nucs came from Georgia. Potentially, all of the

colonies brought from the South could have been exposed to small hive beetle either in the South, or by proximity at pollination sites this summer. It is recommended that beekeepers who bring bees in, treat the soil with GardStar.

**Control.** The most critical thing is early detection. Check your colonies carefully when you are working with them, pay special attention to the top inner cover and bottom board for beetles. Collect them and send them to me, Zachary Huang (517-353-8136) or to Mike Hansen (616-428 2575) for identification. Once positively identified, you can purchase CheckMite+ (also called Bayer Bee Strips, active ingredient is coumaphos) from Mann Lake Ltd (1-800-233-6663 ). Michigan has obtained a Section 18 (emergency registration) for the use of this pesticide, thanks to the effort by MDA. To use the CheckMite+ strips, prepare a piece of corrugated cardboard (4x4 inches) and remove the cover of one side to expose the corrugation. Cut a strip in two and staple them to the exposed side of the cardboard and place it near the center of the broom board with the strips down. Small hive beetles (SHB) are attracted to the cardboard as a hiding place and are then killed by contact with the coumaphos strip. Treat for 3 to 45 days. It is not recommended that colonies be treated more than four times per year to prevent build-up of resistance. This method probably only works when beetles have just recently invaded the colony and have not started laying eggs yet. Larvae would remain in the frames, not having a chance to reach the cardboard trap, and would not be killed.

**It is extremely important that all of us follow instructions exactly, as the label is the law! Because it is a Section 18, and because there is a "zero" tolerance on the appearance of the pesticide (coumaphos) in the honey, if any honey is tested positive, we are all af-**



**fected! Please do not try any other form of coumaphos for treating the beetles, as the pesticide is extremely toxic to all animals (including humans)!**

Soil treatment would complement the above method since larvae will be killed when trying to enter the soil to pupate. GardStar (contains 40% permethrin) can be used for SHB and is available from Blossomland Supply (616-473-3917) or other stores selling cattle pesticides. Use 5 ml of GardStar per liter (0.05% active ingredient) and spray the area underneath the hive and at least 1 ft in the periphery of each direction. If you bring bees from states where the beetles are established, you should treat the soil before placing the colonies. It is not clear how long the pesticide will stay active in the soil before re-application is needed.

Right now most damage seems to be in the honeyhouses. We can no longer let honey supers stay for a month before extracting if we have beetles. Extract promptly (within one week), keep the honey house clean, and fumigate the extracted supers before storage or putting them back to the colonies.

**Outlook for Michigan:** It is difficult to say how soon (if ever) the beetles will be established in the state. Once established, they will require constant treatment for their control and will increase the costs of honey production and pollination. It is clear that the beetle will be able to winter here, mostly inside beehives, based on the fact that it did so in Minnesota. They will not survive the winter in unheated honey houses or outside of beehives. At this stage we can eradicate it easily (before its widespread) if beekeepers bringing in bees from other states take special precautions and always treat the soil before placing hives. Due to colder weather, SHB should spread slower here than in Florida. Also, compared to Florida, we do not have as many decaying fruits and vegetables to provide alternative breeding grounds for them.

**The bottom line is—we have one more pest to deal with and they might be here to stay. We need everybody to pay special attention to this new pest and hope they do not get established right away.**



## Small Hive Beetle, *Aethina tumida*

First observation in United States: May 1998 – Florida

Native to: Africa, all portions south of the Sahara Desert

Currently found in: Florida, Georgia, South Carolina, North Carolina, Ohio, Pennsylvania, New Jersey, Minnesota, Michigan

Distribution map: <http://ceris.purdue.edu/napid/pests/shb/imap.shball.html>

Life Cycle: Beetles live in the colony where they feed on brood, wax, honey and pollen. Eggs can be laid anywhere in the colony, larvae emerge in a short period of time. Larvae eat brood, pollen, wax, honey, and damage brood and honeycomb. The larvae must enter the soil to pupate. Adults emerge and fly (up to 15 miles) to a colony of bees where they take up residence. Adults can live up to 6 months.

Morphology: <http://www.cyberbee.net/new-pest.shtml>

Alternate Hosts: The beetle will complete a life cycle on some rotting and decaying fruits.





## Chemical Update

The following information provides registration status of particular pesticides and should not be considered as pesticide recommendations by MSU Extension.



*Products are listed by trade name with active ingredient name and manufacturer following. Please note that multiple manufactures may make the same product. A change in the registration, formulation, or label of a product from one manufacturer **may not apply** to the same product made by another manufacturer. If you have any doubts about the status of a pesticide, please read a current label and/or check with the manufacturer directly.*

### Residue Tolerances:

#### Insecticides

- Agri-mek (avermectin; Novartis)—residue tolerances established on cucurbits and potatoes at 0.005 ppm, grapes, dried hops, pears, peppers and strawberries at 0.02 ppm, apple pomace and tomatoes at 0.01 ppm.
- Confirm (tebufenozide; Rohm & Haas)—as a result of the IR-4 project, residue tolerances established on canola oil at 4 ppm, canola seed at 2 ppm, turnip roots at 0.3 ppm, and turnip tops at 9 ppm.
- Confirm (tebufenozide; Rohm & Haas)—proposed to establish residue tolerances on grass forage, fodder and hay at 0.5 ppm, and forage, fodder, and hay of non-grass annual feeds at 0.5 ppm. Comments were due by 10/1/99.
- Fulfill (pymetrozine; Novartis)—residue tolerances established on corm and tuberous vegetable crops at 0.02 ppm.
- Fury (zeta-cypermethrin; FMC)—proposed to establish residue tolerances on sugarbeet roots at 0.05 ppm, sugarbeet tops at 0.2 ppm, corn grain at 0.05 ppm, green onions at 6 ppm, alfalfa seed at 0.5 ppm, alfalfa forage at 10 ppm, alfalfa hay at 30 ppm, sweet corn at 0.1 ppm and sweet corn fodder at 30 ppm. Comments were due by 10/8/99.
- Lindane (C.I.E.L.)—proposed to establish residue tolerances on broccoli, Brussels sprouts, cabbage, cauliflower, celery, collards, kale, kohlrabi, lettuce, mustard greens, spinach, and Swiss chard at 0.05 ppm, corn at 0.01 ppm, and radishes at 0.1 ppm. Comments were due by 9/23/99.
- Success (spinosad; Dow AgroSciences)—as a result of the IR-4 project, proposed to establish residue tolerances on barley, buckwheat, oats and rye at 0.02 ppm, pearl millet, proso millet and grain amaranth at 1 ppm, popcorn and non-grass animal feed at 0.02 ppm, turnip greens at 10 ppm, and cilantro and watercress at 8 ppm. Comments were due by 11/15/99.
- Success (spinosad; Dow AgroSciences)—residue tolerances established on pea and bean legumes at 0.02 ppm, wheat flour at 0.15 ppm, cucurbit vegetables at 0.3 ppm, edible podded legume vegetables at 0.3 ppm, soybeans at 0.02 ppm, stone fruit at 0.2 ppm, corn grain at 0.02 ppm, sorghum grain at 1 ppm, wheat grain at 0.02 ppm, forage, fodder, hay, stover and straw of cereal grain at 1 ppm and aspirated grain fractions at 20 ppm.

#### Herbicides

- BAY-MKH-6562 (flucarbazone-sodium; Bayer)—proposed to establish residue tolerances on wheat grain at 0.01 ppm, wheat straw at 0.05 ppm, wheat hay at 0.1 ppm and wheat forage at 0.3 ppm. Comments were due by 11/6/99.
- Prowl (pendimethalin; American Cyanamid)—IR-4 project has proposed to establish residue tolerances on carrots at 0.5 ppm, peppermint and spearmint at 0.2 ppm, and peppermint and spearmint oil at 1 ppm. Comments were due by 10/1/99.
- Touchdown (sulfosate; Zeneca)—proposed to establish residue tolerances on wheat grain at 10 ppm, wheat hay at 1 ppm, wheat straw at 90 ppm, and wheat shoots at 2 ppm. Comments were due by 10/1/99.
- Tough (pyridate; BASF)—established time-limited residue tolerances on peppermint and spearmint at 0.3 ppm. Expires 12/31/01.



#### Fungicides

- Dividend (difenoconazole; Novartis)—time-limited residue tolerances established on sweet corn at 0.1 ppm. Expires 1/31/01.
- Folicur (tebuconazole; Bayer)—the EPA extended time-limited residue tolerances on barley and wheat until 12/11/00.

### Label Additions/Changes:

#### Insecticides

- Deadline Force I (metaldehyde; Pace Int'l)—use on berries and vegetables added to the label.
- Demand CS (lambda-cyhalothrin; Zeneca)—use on lawns, turfgrasses, and ornamental plantings added to the label.



- Diazinon (Novartis)—added control of deer ticks and lone star ticks to the label.
- Merit (imidacloprid; Bayer)—added control of royal palm bug, black pine weevil, psyllids, flathead borers, eucalyptus longhorn beetles, and Japanese beetles to their ornamental label and the suppression of hairy cinch bug nymphs to their turfgrass label.
- Merit (imidacloprid; Bayer)—control of cutworms added to the label.
- Trigard (cyromazine; Novartis)—corrected residue tolerances on onions—dry bulb onions are at 0.1 ppm and green onions are at 2 ppm.

#### Herbicides

- Accord (glyphosate; Monsanto)—the control of deer weed and sumac added to the label.
- Roundup (glyphosate; Monsanto)—use on strawberries as pre-plant and pre-emergence added to the label.

#### Fungicides

- Dithane T/O (mancozeb; Rohm & Haas)—control of leaf spot and rust on ornamentals such as aster and pansy added to the label.
- Fungo (thiophanate-methyl; Cleary)—control of grey leaf spot on turf added to the label.
- Heritage (azoxystrobin; Zeneca)—the control of leaf diseases including leaf, tip and flower blights, leaf spots, downy mildew, and rusts added to the label.
- Medallion (fludioxinil; Novartis)—control of myrothecium and cercospora as a foliar spray and the control of fusarium, cylindrocladium and sclerotium as a soil drench added to the ornamental label.

### **Label Deletions/Cancellations:**

#### Insecticides

- Adept (diflubenzuron; Uniroyal)—ornamental use on poinsettias, Reiger begonia and hibiscus removed from the label.
- Mavrik (fluvalinate; Wellmark)—use on commercial and residential turf deleted from the label. Unless withdrawn, this will be effective 2/22/00.

### **New Registrations:**

#### Insecticides

- Atrapa VCP (malathion; Griffin)—a new formulation recently introduced for large scale mosquito programs and will be marketed by VanWaters & Rogers.
- Chipco 60818 (fipronil; Rhone Poulenc)—a new formulation developed to control thrips and fungus gnats on ornamental trees, shrubs and flowers.
- Endeavor (pymetrozine; Novartis)—registered for use on ornamentals to control aphids and whiteflies.
- Proclaim/Denim (emamectin benzoate; Novartis)—conditionally registered for use on lepidoptera pests on head and stem brassica veg-

etables, celery, and lettuce.

- Vision (cyfluthrin/imidacloprid; Bayer)—a combination insecticide being marketed to the home and garden market to control various insects on lawns and ornamentals.

#### Herbicides

- AC 900001 (picolinafen; Cyanamid)—a new herbicide being introduced for use on cereals. Applied post-emergence to control broadleaf weeds.
- Flucarbazone-sodium (Bayer)—proposed to register this new active ingredient for post-emergence control of wild oats and green foxtails in spring wheat. Comments were due by 11/19/99.
- Trupower (MCPA/bromacil/clopyralid; Riverdale)—a new turf herbicide designed to control hard-to-kill broadleaf weeds.

#### Fungicides

- Compass (trifloxystrobin; Novartis)—Registered for use on turf and numerous ornamentals to control various diseases.
- Countdown (chlorothalonil; Zeneca)—a new formulation developed for use on vegetables, fruit trees, and ornamentals to control various diseases.
- Flint (trifloxystrobin; Novartis)—Registered for use on grapes, cucurbits, vegetables and pome fruit to control powdery mildew, sooty blotch, scab, fly speck, black rot and the suppression of bitter rot and white rot.
- Serenade (QST strain of *Bacillus subtilis*; Agrquest)—new fungicide for the control of downy mildew, early blight, and brown rot on grapes, potatoes, and tomatoes.



### **Section 18's and 24(c)'s:**

#### Fungicides

- Folicur (tebuconazole; Bayer)—granted a specific exemption to Arizona, Idaho, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, North Dakota, Oregon, South Dakota, Texas and Washington Department of Agriculture for use on wheat to control various diseases (expires 12/31/00).

### **Miscellaneous:**

- Alert (chlorfenapyr; American Cyanamid)—issued an experimental permit for use on 463 structures in several states including Michigan to evaluate its effectiveness at controlling termites.
- Seeds containing a **Monsanto** gene were planted on 68.5 million acres in North America this year compared with 49.9 million acres last year.



- **DowAgroSciences** in conjunction with Pioneer HiBred are developing genetically engineered corn resistant to corn rootworm. Introduction of the seed is planned for 2002.
- **FMC** has cancelled their Methyl Parathion 2 and Thiodan 3EC label due to the EPA's August memo-

randum on methyl parathion (related to FQPA). The company has resubmitted a label to EPA to maintain uses on cabbage, cotton, and dried beans which should be available for the 2000 season.

Source: *Ag Chem News*, 10/15/99 and 11/15/99



## News Extras



### IR-4 and Pest Control Products for Minor Crops: A Success Story

If you are recommending pest control products for fruits, vegetables, herbs, ornamentals or other minor crops, chances are good that many of those product registrations are a direct result of IR-4 research. In the brief period from January to September 1999, IR-4 activities resulted in more than 100 clearances for food crops and over 250 ornamental clearances. Many of these have the potential to substitute for pesticides under intense scrutiny by EPA due to the Food Quality Protection Act.

The IR-4 Project (Interregional Research Project No. 4) is the USDA-funded program that develops data for pest control registrations on minor crops. Minor crops have high value but are low in acreage compared to corn, wheat, soybeans and cotton. The crop protection industry has little economic incentive to pursue registrations on low acreage crops even though minor crops as a whole make up 40% of U.S. agricultural sales. IR-4 takes on the minor crops challenge. IR-4 generates residue data for food crops, and efficacy and phytotoxicity data for ornamentals. This data together with toxicology data from industry registrants is used to prepare EPA petitions for product registration. The focus of IR-4's work is on reduced-risk safer chemistries and biopesticides. These are not only IPM-friendly, but may also be replacements for products at risk from EPA's tolerance reassessment activities. **Forty percent of the clearances granted by EPA have IR-4 involvement.**

IR-4 was initially organized by the state Agricultural Experiment Stations in 1963. The goal was, and still remains, to gather data to label pest control products for

use on minor crops. The university connections remain strong. IR-4 Headquarters is affiliated with Rutgers University in New Jersey. There are IR-4 Regional Centers housed at the University of Florida, Cornell University (Geneva), Michigan State University, and University of California at Davis as well as university-affiliated USDA-ARS research centers. Additionally, each state has an IR-4 liaison located at the state land grant university.

IR-4 uses the input of many organizations and individuals to maintain a selection of pest control products for minor crops. All research at IR-4 begins with a Pesticide Clearance Request (PCR) form. It's a single page used to identify a need and the product likely to fill the need. Traditionally, PCR's are submitted by growers, university and USDA researchers, extension agents/crop advisors, and commodity groups. An electronic version of the PCR is available on the IR-4 website at <http://www.cook.rutgers.edu/~ir4>. Once each year, at the IR-4 Food Use Workshop and the Ornamentals Use Workshop, all potential research projects are reviewed. They are then prioritized and the research agenda is set for the coming year. After a pest control product need becomes a researchable project, field trials and residue analyses for food crops are conducted. Ornamental crops require safety and efficacy data, but not residue analysis. IR-4 also gets involved when a minor use is identified on a major food or feed crop and no pest control product is registered. The time frame from project prioritization to data package submission to EPA is targeted at thirty months.

More information on IR-4 is available at the IR-4 website mentioned above. There you will find the status of all current IR-4 research projects, products that have already been submitted to EPA for registration, new clearances, cumulative clearances, new pesticide chemistries, an electronic version of the PCR form and the IR-4 Newsletter.

Sandy Perry  
National IR-4 Outreach Specialist  
housed at Michigan State University  
Reach Sandy at 517-432-5999 or e-mail  
[perrys@msue.msu.edu](mailto:perrys@msue.msu.edu)



## Status of Organic Foods in Michigan Grocery Stores

Last year, I noticed that the Kroger supermarket near my house started a small organic foods section in the produce department. Over the months, this section gained a huge wooden sign, and grew much larger, presumably because of customer demand. I got curious. How many other stores had organic produce sections? Did other stores promote organic to the extent of my local Kroger? Do organic products always cost more? Luckily, I teach a class in the fall, meaning I have 16 extra bodies willing (for a price, um, grade) to travel and collect this information. Each student visited a major grocery store. They recorded how organic food was presented in each store, examined organic labels to record certification and claims, and compared prices of organic versus similar non-organic items. The following is a summary of their findings.

*Number of different stores visited:* 11, including Kroger supermarkets, L&L Food Centers, Meijer, Goodrich's Shoprite, and Foods for Living (all in the Lansing area) and Meijer Stores in Jackson, Muskegon, and Holland. Several of these stores were visited by more than one student.

*Promotion:* 6 stores, in the student's opinion, actively highlighted organic items in the produce section. Promotion took the form of special signs or eye-catching price labels stating "organic", "organically grown" or "organic—a better way to live". However, no store attempted to define organic on their signs.



*Organic Section:* Four of the stores—1 Kroger and 3 Meijers stores, had separate good-sized areas devoted exclusively to organic produce.

*Certifying standards and agencies:* By far the standards cited most frequently on organic labels were the California Organic Foods Act 1990 (COFA) and the Oregon Tilth Standard (OTCO). Many of the processed fruit and vegetable products were certified under these guidelines. In one case, "Michigan Organic Growers" was listed as the certifying agency on a label.

*Price differential:* Organic and non-organic items, as similar as possible in type, quantity, size, etc, were compared (for example, the same size box or jar). A positive price differential in the table means the organic item was more expensive than a comparable non-organic item. In all but 2 cases, cheese strings and leaf lettuce, the price of the organic item was more than the non-organic item, sometimes substantially more. Students usually rated quality of the organic items (when it was possible to rate—for example—fresh produce) as equal to, and sometimes better, than non-organic counterparts.

FOOD ITEM	\$ PRICE DIFFERENTIAL
<i>Baby food</i>	
-pears, jar	0.15
-vegies, jar	0.20
<i>Beverages</i>	
- coffee, whole bean, 12 oz	5.00
- orange juice, 1/2gal	1.10
- organge juice, 1/2 gal	1.30
- soymilk, 1/4 gal	0.10
- coffee filters, 100-pack	0.30
<i>Canned/Jarred Foods</i>	
- apple sauce	0.67 - 1.40
- baked beans	0.94
- black beans	0.22 - 1.00
- kidney beans	0.80
- navy beans	0.70
- pinto beans	0.60
- garbanzo beans	0.86
- corn	0.66
- peas	0.30
- mixed vegetables	0.50
- diced tomatoes	0.60
- tomato puree, 25 oz	1.50
- salsa	0.30
- peanut butter	1.50
- pasta sauce	1.60
- pickles	0.90
<i>Dairy</i>	
- butter 1/2 lb	1.15
- cheese strings, package	-0.04
- cream cheese, 8 oz.	0.69
- eggs, dozen, "free-range"	1.20 - 2.10
- milk, gal	0.50 - 3.00
- flavored yogurt	0.04 - 0.26
- plain yogurt, 2 lb	1.00
<i>Frozen Foods</i>	
- French fries	0.30
- frozen broccoli	0.91
- frozen corn, bag	1.06
- frozen green beans, bag	0.90
<i>Grains</i>	
- corn chex, box	1.80
- oat bran, box	1.46
- puffed rice, box	0.20
- crackers, box	0.63
- angel hair pasta, box	0.90
<i>Produce</i>	
- apples, 5 lb bag	4.46
- avocado	1.50
- broccoli, bunch	0.40 - 1.30
- cabbage, lb	0.10
- baby carrots, sm bag	0 - 0.20
- whole carrots, lb	0.15 - 0.45
- cauliflower, each	1.61 - 2.11
- celery, bunch	1.40
- celery hearts, lb	0.20
- grapes, lb	0.70
- green peppers, lb	0 - 1.00
- head lettuce	1.00
- leaf lettuce, head	-0.30 - 0.70
- kiwis, n=6	0.29
- red leaf lettuce	0
- romaine lettuce, lb	0 - 0.70
- romaine hearts, lb	1.20
- sliced mushrooms	1.20
- portobello mushrooms, 6 oz	0.20
- onions, lb	0 - 0.26
- potatoes, lb	0.34
- raisins, 15 oz box	0.80 - 1.00
- salad in a bag, oz	0.27
- scallions	0.69



*Claims made on labels:* How do organic products promote themselves? Students recorded claims and other interesting statements on the label, particularly noting comments about pesticides.

- “More nutritious”
- “Better for your family”
- “The healthiest choice for you and your planet.”
- “This product protects the planet.”
- “A choice closer to nature”
- “Hens fed a wholesome organic diet”
- “Founder George Mateljan wants to provide you nutrients, good tasting food, without polluting our precious water or diminishing our topsoil.”
- “Children are at risk from pesticide residues.”
- “Made without hormones, antibiotics or pesticides.”
- “Grown without fungicides, herbicides or pesticides.”
- “This product made without pesticides and with the purest ingredients.”
- “Organically grown without the use of synthetic pesticides, herbicides, or fertilizers.”
- “Made without the use of pesticides and chemicals. Protects our land and water from harmful substances.”
- “Organically grown food helps eliminate runoff.”
- “No trace elements passed on to you or your family.”
- “Everyone desires to breathe clean air, drink pure water, and eat healthy foods that are pesticide free. When commercial farmers use pesticides to grow their crops, the chemicals they apply not only remain in the food you eat, they contaminate our planet’s water, soil, and air.”
- “Imagine a field with rich pure soil touched by the sun and rain and gentle breezes. Now imagine loving hands planting, nurturing, and harvesting a bounty of fresh vegetables from this field. These are vegetables we have grown for you, freshly flavorful organic vegetables meant for sharing with family and friends. Grown Free—Grown just for you.”

This is the second year that students have gone to grocery stores to look for organic food. Over the next few years, we should be able to document changes in the way organic food, especially produce, is being sold in major stores in the Lansing area.

Chris Difonzo  
MSU Pesticide Education Program

### **Pesticide Certification Manuals on Line!**

Check out the MSU Pesticide Education Website [www.pested.msu.edu](http://www.pested.msu.edu) to find pesticide certification manuals available in PDF format including the *Pesticide Applicator Core Training Manual* (E-2195); *Aquatic Pest Management, Category 5* (E-2437); *General Pest Management, Category 7A* (E-2048); and *Vertebrate Pest Management, Category 7D* (E-2050).

## **Monarch/Bt Pollen Issue Discussed in Chicago**

On November 2<sup>nd</sup> a meeting was held in Chicago to examine research findings about monarch butterflies and *Bt* corn pollen. Some of you may recall that in May, Cornell researcher John Losey reported results of a preliminary study that indicated *Bt* corn pollen dusted on milkweed leaves reduced survival of small monarch butterfly caterpillars. Monarchs are probably the most recognized insect in the U.S., undergoing a spectacular migration each year to overwinter in Mexico. They feed exclusively on milkweed.

The Cornell research was reported widely in the press and in extension newsletters (see the MSU Cat Alert newsletter, May 27, 1999 at [http://www.msue.msu.edu/ipm/CAT99\\_field/FC05-27-99.htm](http://www.msue.msu.edu/ipm/CAT99_field/FC05-27-99.htm) or *Pesticide Notes*, May/June Edition, <http://www.pested.msu.edu/pdf/mj-pn-99.pdf>). The approval process for transgenic plants stopped in the European Union after the research was announced. At the same time, researchers across the midwest rushed to add monarch and corn pollen work to already-full summer schedules. **Preliminary results** of this work were reported at the Chicago conference, sponsored by the Ag Biotech Stewardship Working Group (biotech companies, researchers, + USDA).

Some highlights from the conference:

- Chip Taylor, University of Kansas, discussed factors threatening monarchs. These include starvation, predators, weather, and humans destroying habitat and disturbing overwintering sites. Despite a lot of research work, Taylor says it is still not clear how many monarchs make up the population in the U.S, why populations vary from year to year, or how much *Bt* corn pollen will affect populations.
- Dennis Calvin, Penn State, used a climate model to predict overlap of pollen shed and monarch life stages in Pennsylvania. His model predicts that eggs and small larvae would not overlap much with pollen shed. However, larger larvae might be present during pollen shed, but likely are less sensitive to *Bt*.
- Rich Hellmich, USDA/ Iowa State, examined the effect of pollen on monarch feeding behavior. He found that fewer larvae fed on leaves dusted with excessive pollen, but that larvae actually might feed more on leaves dusted with small amounts of pollen. He also found that pollen from different *Bt* “events” affected larvae differently, i.e., Event 176 seemed more toxic to larvae.
- Chris DiFonzo, Michigan State University, reported work on a different caterpillar, the tiger swallowtail. This swallowtail is common in Michigan, and is very susceptible to *Bt* sprays. Swallowtails had greater mortality and less weight gain on host plant (tulip tree) leaves dusted with pollen than leaves without pollen. Interestingly, it didn’t matter if the pollen came from *Bt* or non-*Bt* corn. When given a choice, swallowtail larvae avoided feeding on portions of



tulip tree leaves dusted with pollen; again, it didn't matter whether pollen was *Bt* or non-*Bt*.

- Several researchers attempted to define dose/response relationships between *Bt* pollen and impacts on monarchs. "Doses" reported by people in the past have been in terms of number of *Bt* pollen grains per cm<sup>2</sup> of leaf tissue. However, it isn't known how much *Bt* toxin is exactly present per grain of pollen.
- Blair Siegfried, University of Nebraska, fed monarch larvae different *Bt* toxins in an artificial diet. He found that Cry1Ab (the toxin in most *Bt* corn varieties) was the most toxic to monarchs. Cry 1Ac and Cry 9 (the latter is in "Starlink" *Bt* corn) were less toxic, and Cry 1F (just being tested in corn) did not exhibit toxicity.
- Galen Dively, University of Maryland, did an extensive study on corn pollen distribution on milkweeds in the field. He found that pollen load drops off rapidly on plants even 10 feet from the edge of a corn field. Several other researchers from different universities reported similar results. Dr. Dively also found that lower leaves of milkweeds tend to have more pollen, because the pollen drops from the upper leaves. In the course of his work, he examined hundreds of milkweed plants—and actually found no larvae!
- Considering the short response time, the conference illustrated how much time, effort, and resources were shifted in mid-summer to address the monarch/*Bt* pollen issue. Further data will be reported in the Entomology Society of America meeting in December.

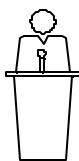
Chris Difonzo  
MSU Pesticide Education Program

## New Staff at MSU Pesticide Education Program

We would like to welcome two new staff members at MSU's Pesticide Education Program. Rebecca Hines has been hired to fill the position that Sandy Perry vacated. She has a B.S. in Zoology from University of Wisconsin—Madison and a M.S. in Entomology from University of Minnesota. Most recently she has worked in central Mexico in Integrated Pest Management (IPM) for processed broccoli production. Currently, Rebecca is rewriting the Field Crop Training Manual (1A) and will begin work on the Vegetable Crop Manual (1B) soon. Rebecca is interested in becoming more involved with migrant labor farmers and GMO public education.

Erica Jenkins has been hired to work on a grant from EPA and the National Urban Initiative. In this position she will work closely with Michigan Department of Agriculture on developing educational programs for community/urban IPM. She will be establishing Community Pest Management Groups in target communities to help empower and educate on IPM and the hazards of illegal or misapplied pesticides in homes.

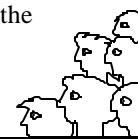
Erica comes to us with a B.S. from Cornell in horticulture and a M.S. in agronomy and entomology from The Ohio State University. In addition to a strong background in entomology, she has worked in Rhode Island on pesticide education. In this capacity she wrote 13 extension publications on pesticides and groundwater. She has also had extensive experience working with children and youth which will come in handy in her IPM in schools role. You may know her from her most recent position as Agriculture and Natural Resources Agent in Ingham County working on the Sycamore Creek Watershed Project. We welcome Erica and Rebecca as part of our team.



## Pesticide Applicator Recertification Seminars

This partial listing of recertification seminars was provided by MDA. Certified applicators and registered technicians may earn recertification credits by attending these programs. For additional information, call the MDA Lansing office at (517) 373-1087.

**NOTE:** Renewal of pesticide applicator certification credentials can be done by taking the appropriate exam(s) or by obtaining the necessary number of recertification credits by attending approved seminars.



Date	Seminar	Location	Credit	Category	Phone #
12/14	Pesticide Update	Big Rapids, MI	2	Any	(231)592-0792
12/14	Farm Safety Challenge Seminar	Chesaning, MI	2	Priv, Com Core,1A	(517)723-7000
12/14	Pesticide Certification Review	Ellsworth, MI	2	Any	(231)946-1510
12/14	Emerg Farm Plan/Weed ID Wksp	Chesaning, MI	3	Priv, Com Core,1A	(517)799-2233
12/15	Pstcde Wksp for Hispanic Farm Wrkrs	Lake Leelanau, MI	2	Any	(231)256-9888
12/15	Corn Rootworm	Ann Arbor, MI	1	Priv,1A	(734)971-0079
12/15	Emerg. Planning for the Farm	Munger, MI	1	Priv	(517)895-4026
12/15	MNLA Pesticide Credit Clinic	East Lansing, MI	4	Priv, Com Core,3A	(517)381-0437
12/16	MNLA Pesticide Credit Clinic	East Lansing, MI	4	Priv, Com Core,3A	(517)381-0437



<b>Date</b>	<b>Seminar</b>	<b>Location</b>	<b>Credit</b>	<b>Category</b>	<b>Phone #</b>
12/16	Advanced Com. Applicator School	Saginaw, MI	4	Com Core,1A,1B,1C	(636)278-1386
12/16	Pesticide Certification Review	Twin Lakes, MI	2	Any	(231)946-1510
12/17	Alfalfa Weevil	Ann Arbor, MI	1	Priv,1A	(734)971-0079
12/17	Potato Leafhopper	Ann Arbor, MI	1	Priv,1B	(734)971-0079
12/20	Insects in Wheat	Ann Arbor, MI	1	Priv,1A	(734)971-0079
12/20	Pesticide Applicator Video Review	Allegan, MI	2	Any	(616)673-0370
12/21	Pesticide Applicator Training Sess.	Marshall, MI	2	Any	(517)781-8785
12/27	Pesticide Applicator Video Review	Allegan, MI	2	Any	(616)673-0370
12/27	Pesticide Applicator Training	Howell, MI	2	Priv	(517)546-3950
1/5/00	MNLA Trade Expo-Prod/Grower Conf	Lansing, MI	1	Priv, Com Core,3B	(800)879-6652
1/5	MNLA Trade Expo-Hands-on Clnc AM	Lansing, MI	2	Priv,Com Core,3A,3B	(800)879-6652
1/5	MNLA Trade Expo-Hands-on Clnc PM	Lansing, MI	2	Priv,Com Core,3A,3B	(800)879-6652
1/6	MNLA Trade Expo-Research Updates	Lansing, MI	2	Priv,3A,3B	(800)879-6652
1/6	Ghouse Grwr-Root Mgmt (Spanish)	East Lansing, MI	2	Priv	(616)383-8830
1/7	MNLA Trade Expo-MDA	Lansing, MI	1	Priv, Com Core,3A	(800)879-6652
1/7	MNLA Trade Expo-Weeds & Control	Lansing, MI	1	Priv, 3A, 3B	(800)879-6652
1/7	MNLA Trade Expo-OSHA Requirmnts	Lansing, MI	1	Priv, Com Core	(800)879-6652
1/5-1/8	Grower expo 2000	Atlanta, GA	2	Priv	(630)208-9080
1/10	Exotic Insect & Disease Pests	Clinton Twp., MI	3	Any	(810)469-6440
1/10	Pesticide Applicator Review Session	Monroe, MI	2	Core, 7A	(800)799-0067
1/10	MABA Winter Conf-Biotechnology	Lansing, MI	2	Priv, Com Core,1A	(517)336-0223
1/10	MABA Winter Conf-Prof Appl Trng	Lansing, MI	2	Priv, Com Core	(517)336-0223
1/10	MABA Winter Conf-Env/Reg Issues	Lansing, MI	2	Priv, Com Core	(517)336-0223
1/10	MABA Winter Conf-Pest Mng Updt	Lansing, MI	2	Priv, 1A	(517)336-0223
1/11	MABA Wntr Conf-Trans/PDT Saftey	Lansing, MI	1	Priv, Com Core	(517)336-0223
1/11	Grnhouse Grower-Root Zone Mgmt	East Lansing, MI	2	Priv	(616)383-8830
1/11	Grnhouse Grower-Disease Mgmt	East Lansing, MI	2	Priv	(616)383-8830
1/11	Grnhouse Grower-Insect Mgmt	East Lansing, MI	2	Priv	(616)383-8830
1/11	Whitmire Mirco-Gen Field Ext. Prog.	Miami, FL	2	Com Core,7A	(800)799-0067
1/12	MABA Wntr Conf-Pest Mgmt a.m.	Lansing, MI	2	Priv, 1A	(517)336-0223
1/12	MABA Wntr Conf-Pest Mgmt p.m.	Lansing, MI	2	Priv, 1A	(517)336-0223
1/12	Whitmire Mirco-Gen Field Ext. Prog.	Miami, FL	2	Com Core,7A	(800)799-0067
1/12	MI Arborist Assoc-Insect & Disease	Waterford, MI	4	Com Core,3B	(800)622-4055
1/13	Whitmire Mirco-Gen Field Ext. Prog.	Tampa, FL	2	Com Core,7A	(800)799-0067
1/13	Pesticide Applicator Training	Howell, MI	2	Any	(517)546-3950
1/13	Ghouse Grwr-Disease Mgmt (Spanish)	East Lansing, MI	2	Priv	(616)383-8830
1/17	Sugar Beet/Dry Bean Pest Mgmt.	Bad Axe, MI	3	Priv,1A	(517)799-2233
1/17	MTF Conf-ID Ornamental Diseases	Lansing, MI	1	Com Core,3B	(517)321-1660
1/17	MTF Conf-Weed ID & Gen Cntrl	Lansing, MI	1	Com Core,3A	(517)321-1660
1/17	MTF Conf-Turfgrass/Summer Stress	Lansing, MI	1	Com Core,3A	(517)321-1660
1/17	MTF Conf-Calc. Pesticide Appl.	Lansing, MI	4	Com Core,3A	(517)321-1660
1/17	MTF Conf-ID Ornmental Disease PM	Lansing, MI	1	Com Core,3B	(517)321-1660
1/17	MTF Conf-Weed ID & Gen Cntrl PM	Lansing, MI	1	Com Core,3A	(517)321-1660
1/17	MTF Conf-Mondy Night Open Forum	Lansing, MI	1	Com Core,3A	(517)321-1660
1/18	MTF Conf-Grub ID & Control	Lansing, MI	2	3A	(517)321-1660
1/18	MTF Conf-Gen. Sess/Research Rprt	Lansing, MI	2	Com Core, 3A, 3B	(517)321-1660
1/19	MTF Conf-Prof. Grounds Mgmt.	Lansing, MI	2	Com Core, 3B	(517)321-1660
1/19	MTF Conf-Prof. Lawn Care	Lansing, MI	2	Com Core, 3A	(517)321-1660
1/19	MTF Conf-Sports Turf	Lansing, MI	2	Com Core, 3A	(517)321-1660
1/19	MTF Conf-Agronomic Practices	Lansing, MI	1	Com Core, 3A	(517)321-1660
1/19	MTF Conf-Environmental Session	Lansing, MI	1	Com Core, 3A	(517)321-1660
1/19	MTF Conf-Aquatic Session	Lansing, MI	1	Com Core, 5	(517)321-1660
1/19	MTF Conf-Golf Turf Session	Lansing, MI	2	Com Core,3A	(517)321-1660
1/19	MPCA Technician Training	Warren, MI	4	Com Core,7A	(810)498-8480
1/19	Sugar Beet/Dry Bean Pest Mgmt	Mt. Pleasant, MI	3	Priv,1A	(517)799-2233



Date	Seminar	Location	Credit	Category	Phone #
1/19	MI Arborist Assoc-Tree Stress Mgmt	Waterford, MI	4	Com Core,3B	(800)622-4055
1/20	Core Manual Review	Allendale, MI	2	Any	(616)673-0370
1/20	MTF Conf-Early Bird Workshop	Lansing, MI	1	3A	(517)321-1660
1/20	MTF Conf-Golf Turf Session	Lansing, MI	2	Com Core, 3A	(517)321-1660
1/20	MTF Conf-Prof Lawn Care/Grounds	Lansing, MI	1	3A	(517)321-1660
1/20	MTF Conf-Course Design	Lansing, MI	1	Com Core,3A	(517)321-1660
1/20	MTF Conf-Aquatic Mgmt	Lansing, MI	1	Com Core,5	(517)321-1660
1/24	Sugar Beet/Dry Bean Pest Mgmt.	Frankenmuth, MI	3	Priv,1A	(517)799-2233
1/24-28	Good Manuf Practices-Food Industry	Danville,IL	12	Com Core,7A,ST	(217)442-1800
1/25	Whitmire Mirco-Gen Field Ext Prog.	San Jose, CA	2	Com Core,7A	(800)799-0067
1/26	Whitmire Mirco-Gen Field Ext Prog.	Southern, CA	2	Com Core,7A	(800)799-0067
1/27	Whitmire Mirco-Gen Field Ext Prog	Las Vegas, NV	2	Com Core,7A	(800)799-0067
1/27	Ghouse Grwr-Insect Mgmt (Spanish)	East Lansing, MI	2	Priv	(616)383-8830
2/1	Pest Control for Interior Plantscapers	Columbus, OH	4	Com Core,7E	(614)487-1117
2/4	Pest Control for Interior Plantscapers	Perrysburg, OH	4	Com Core,7E	(614)487-1117
2/14	Arthropods in Farm, Home & Garden	Clinton Twp., MI	3	Any	(810)469-6440
2/15	Whitmire Mirco-Gen Field Extension	Birmingham, AL	2	Com Core,7A	(800)799-0067
2/16	Whitmire Mirco-Gen Field Extension	Atlanta, GA	2	Com Core,7A	(800)799-0067
2/17	Whitmire Mirco-Gen Field Extension	Charlotte, NC	2	Com Core,7A	(800)799-0067
2/18	Pest Control for Interior Plantscapers	Chicago, IL	4	Com Core,7E	(614)487-1117
2/22	Whitmire Mirco-Gen Field Extension	St. Louis, MO	2	Com Core,7A	(800)799-0067
2/23	RUP Core Training Meeting	Paw Paw, MI	2	Any	(616)657-7745
2/23	Whitmire Mirco-Gen Field Extension	Dallas, TX	2	Com Core,7A	(800)799-0067
2/24	Whitmire Mirco-Gen Field Extension	Houston, TX	2	Com Core,7A	(800)799-0067

Instructions for recertification training seminar attendance and training seminar dates are posted at the MDA website:  
<http://www.mda.state.mi.us/industry/semsked.html>

## Pesticide Education and PIAP Staff Directory

### Pesticide Education Program [www.pested.msu.edu](http://www.pested.msu.edu)

*Chris DiFonzo*  
 Coordinator and Field Crops Entomologist  
 517-353-5328  
[difonzo@pilot.msu.edu](mailto:difonzo@pilot.msu.edu)

*Carolyn Randall*  
 Editor, Certification Manual Development  
 517-353-5147  
[randallc@msue.msu.edu](mailto:randallc@msue.msu.edu)

*Becky Hines*  
 WPS, Certification Manual Development  
 517-353-9490  
[hines\\_re@msu.edu](mailto:hines_re@msu.edu)

*Erica Jenkins*  
 Community IPM & IPM in Schools  
 517-353-4494  
[jenkinse@msue.msu.edu](mailto:jenkinse@msue.msu.edu)

*Todd Rossman*  
 Webmaster, Publications  
 517-353-4703  
[rossmant@msu.edu](mailto:rossmant@msu.edu)

*Jennifer Patterson*  
 Secretary  
 Phone: 517-432-2203  
 FAX: 517-353-4995

**Pesticide Impact and Assessment Program (PIAP)**  
*Larry Olsen*  
 North Central Region Coordinator  
 517-355-0118

*Lynnae Jess*  
 PIAP State Liaison  
 Pesticide Education Program  
 517-432-1702  
[jess@msue.msu.edu](mailto:jess@msue.msu.edu)

*Pat Sutherland*  
 Administrative Assistant  
 517-353-8811  
[suther24@msu.edu](mailto:suther24@msu.edu)

B18 Food Safety & Toxicology Building  
 Michigan State University  
 East Lansing, MI 48824



MSUE Pesticide Education Programs  
Center for Integrated Plant Systems  
B18 Food Safety & Toxicology Bldg.  
Michigan State University  
East Lansing, MI 48824

