VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the Purdue University Cooperative Extension Service

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No. 531
November 5, 2010

<http://www.btny.purdue.edu/pubs/vegcrop>

IN THIS ISSUE

Brown Marmorated Stink Bug: A New, Potentially Serious Pest - *(Rick Foster)* - Insect samples received by the Purdue Plant & Pest Diagnostic Lab from homeowners in Elkhart and Tippecanoe Counties were confirmed to be the brown marmorated stink bug, *Halyomorpha halys*. This is the first confirmed record of this insect in Indiana. The brown marmorated stink bug (marmorated means "having a marbled or streaked appearance") is a native of Japan, Korea, and China and was first reported in the U.S. in Pennsylvania in 1998. This insect can be a pest in two ways. First, it can invade houses in the fall, much like the dreaded multicolored Asian lady beetle. The stink bugs will not do any damage while in a home, other than to be annoying and to smell bad when disturbed. Stink bugs get their name because they release a pungent chemical as a defensive mechanism when threatened. However, the more important concern is that the brown marmorated stink bug can become a serious crop pest. They will use their sucking mouthparts to feed on a wide variety of plants, including most fruit crops, a number of vegetables, corn, soybeans, and various ornamental plants.

The adult stage of the brown marmorated stink bug has the shield-shape common to most stink bugs. They are about 5/8 inch long and 3/8 inch wide. The upper body is mottled brown and grey with alternating light and dark bands on the edges of the abdomen. One of the diagnostic characters for this stink bug is that the antennae have two light bands on the last two segments (Figure 1). Eggs are laid in clusters and are barrel-shaped and green. Nymphs are oval with yellow, brown, black and red coloration.

Figure 1: The brown marmorated stink bug, which can be a pest of some vegetable crops, has been reported in Indiana. *(Photo by John Obermeyer)*

Experiences in other parts of the country indicate that the brown marmorated stink bug will first be a pest in homes before it becomes a crop pest. Just as with the Asian lady beetle, homeowners should do everything in their power to prevent invasion by the stink bugs, such as caulking around windows, repairing screens, etc. Insecticides may be used on the exterior of the home to limit invasion of the house. Insecticides should not be used indoors to control this insect. Once the stink bugs are inside, they can be vacuumed up and disposed of. Homeowners should discard their vacuum cleaner bag immediately after use because the stink bugs will indeed stink when collected by the vacuum cleaner.

Feeding by the brown marmorated stink bug on fruit crops causes small spots of dead tissue that can result in misshapen fruit if done early in the season. Feeding on apples can result in pithy tissue underneath the feeding wound that may turn brown. Feeding later in the season can result in water soaked lesions. This pest can also feed on fruiting vegetables such as tomatoes and peppers, bean pods, and corn kernels. In some areas of the Eastern US, this stink bug has become a very serious pest. The most effective insecticides for control are the pyrethroids such as bifenthrin, cyhalothrin, cyfluthrin, cypermethrin, etc. Most fruit crop growers prefer to avoid using these insecticides because they kill natural enemies that keep pests such as mites under control. One fear is that if and when the brown marmorated stink bug becomes a serious pest problem, reliance on the pyrethroid insecticides for control will cause additional pest problems, requiring additional pesticide applications.

Cercospora Blight of Asparagus - *(Dan Egel)* - This disease was confirmed in Indiana late this past season. Cercospora blight initially causes small, oval, gray to tan lesions with red borders (Figure 1). If a 10X hand lens

Figure 1: Lesions of Cercospora blight of asparagus are gray to tan and may have red borders. *(Photo by Dan Egel)*

is used, dark flecks within the lesions may be observed; these flecks are where the spores of the causal fungus are produced. Severe infections may cause entire ferns to turn yellow or brown. Cercospora blight may cause reduced vigor and yield of spears the next spring.

The causal fungus overwinters on fern residues left on the soil. When weather in the late spring or summer becomes favorable, spores on this debris may cause disease on the ferns. High humidity in the fern canopy of 95% or higher and average temperatures of 77 to 86°F favor infection. Splashing water from rain or irrigation is important in spread of this disease.

Any practice that minimizes fern debris will help to lessen the impact of Cercospora blight on yields. Growers must balance the benefits of crop residue for preventing erosion and maintaining soil organic matter with the possible disease problems associated with the survival of the Cercospora blight fungus on crop residue. Management practices that minimize crop residue include burning (in accordance with local ordinances), mowing/chopping ferns and then tilling them or re-ridging or even removing ferns in small acreages.

It may be necessary to apply fungicides to keep Cercospora blight from spreading. Three to five applications should be made starting prior to row closure when ferns are about 4 feet in height. Volume of the fungicide applications should be sufficient to get good coverage of the ferns. Drop nozzles may increase fungicide coverage. Chlorothalonil products (e.g., Bravo®, Echo®, Equus®) and mancozeb products (e.g., Dithane®, Manzate®, Penncozeb®) are labeled and will help reduce the severity of Cercospora blight.

Tomato Growth Regulator Label - *(Roberto G. Lopez)* - Fruiting vegetable transplants are typically grown at high densities, which limit penetration of photosynthetic light into the plant canopy. Therefore, transplants often have elongated, weak stems that are easily damaged. This can result in significant damage to transplants during shipment and decrease their marketability. Application of Sumagic® (uniconazole-P) (note that Concise® is NOT labeled) results in compact transplants with thicker stems that are less likely to be damaged during shipment and are much more appealing to consumers. The new supplemental label for Sumagic® is for fruiting vegetable transplants commercially grown in greenhouses, lath houses and shade houses use only.

The following vegetables can be treated with Sumagic®: Eggplant, Groundcherry, Pepino, Pepper, Tomatillo and Tomato all at a rate of 0.52 to 2.6 fl oz per gallon (16-76mL/gal or 2-10ppm).

- Apply uniformly as a foliar spray at a spray volume of 2 qts/100 sq ft.
- Make initial foliar application when 2 to 4 true leaves are present.
- Sequential applications at lower recommended rates will generally provide more growth regulation than a single high rate application.
- First time users should apply the lowest recommended rate in order to determine optimal rate for individual cultivars under local environmental conditions. If additional growth regulation is required a sequential spray application at the lowest recommended rate should be made 7 to 14 days after initial application.
- If multiple applications are made to the transplants, the total amount of uniconazole-P applied may not exceed that from a single application of a 10 ppm spray concentration at 2 qts/100 sq ft (equivalent to 0.000042 lb ai/100 sq ft or 0.018 lb ai/A). The final application may not occur later than 14 days after the 2 to 4 true leaf stage.
- The new supplemental labeling must be in the possession of the user at the time of the application. Please refer to the container label for additional precautionary statements. Follow all application directions, restrictions, and precautions on the EPA registered label. Individuals should contact Valent USA at 1-800-682-5368 to determine if Sumagic® is registered for use in their state. *(Editors note: Sumagic® is labeled for Indiana.)*

Mancozeb Products Labeled for Pumpkin - *(Dan Egel)* - Mancozeb products have been labeled for years on cucurbit crops such as cucumber, muskmelon and watermelon. This fall, two mancozeb products are now labeled for pumpkin use. The products I am aware of that have pumpkin labels to date are: Dithane® and Manzate® (mancozeb is the common name for the active ingredient for these 2 products). Users must be in possession of a label that lists pumpkin or a supplemental label for pumpkin to use either of these products.

The new mancozeb label for pumpkin lists several diseases. Of the ones listed, downy mildew and black rot/gummy stem blight are the ones Indiana growers will most likely encounter. (Black rot is the fruit phase of gummy stem blight and is caused by the same fungus. The fungus that causes downy mildew does not overwinter in Indiana and thus does not affect cucurbit growers every year.)

Fusarium Wilt - *(Nathan Kleczewski)* - (*Editor's note - Nathan is a research associate for the next 2 years in Dan Egel's laboratory in Vincennes*.) - Fusarium wilt (caused by the pathogen *Fusarium oxysporum* f.sp. *niveum*) is a highly destructive disease of watermelon. Infestation of fields with the pathogen can pose significant problems for growers, as *Fusarium oxysporum* f.sp. *niveum* can survive for years in the soil. If growers plant susceptible varieties into infested fields, substantial crop losses occur. Although the pathogen often kills susceptible watermelon plants, other factors, such as the environment, watermelon cultivar, fungal race, or infection intensity may permit plants to tolerate infection, allowing the fungus to grow undetected into the fruits and potentially seed. Thus, seeds harvested from tolerant plants may be pre-inoculated with the fungus and unknowingly planted into fields or greenhouses. It is generally assumed that *Fusarium oxysporum* f.sp. *niveum* can infect seed; however, we do not understand what factors influence seed infection. My current research at Southwest Purdue Ag Center is focused on understanding the seed borne nature of this pathogen, in addition to potentially developing management practices or screening techniques that reduce its accidental incorporation into seed.

Do Soybean Aphids Spread Viruses in Pumpkins? - (*Gina Angelella*) - A research project was initiated this summer with the help of Dan Egel and a group of Indiana pumpkin growers, designed to investigate the dynamics of soybean aphid and aphid-vectored-virus in pumpkin plants. Pumpkins may be infected with *Cucumber mosaic virus, Zucchini yellow mosaic virus, Watermelon mosaic virus,* and *Papaya ringspot virus* by aphids, which carry the virus from plant-to-plant on their mouthparts. Even though the soybean aphid does not feed on or colonize pumpkin plants, soybean aphids could transmit viruses by landing on a pumpkin plant and probing or "tasting" it with contaminated mouthparts before flying off in search of a preferred meal. The viruses can be transmitted with just one probe from a contaminated aphid. To determine if soybean aphids may be transmitting viruses to pumpkins, we will look for patterns between soybean aphid numbers and virus-infected pumpkin plants in fields throughout the growing season, and test how well soybean aphids can transmit the viruses to pumpkins in the laboratory. We will also survey weeds found in pumpkin fields to find out which can be infected with the aphid-vectored-viruses, and see how their presence in the field affects rates of pumpkin plant infection. Lastly, we are interested in whether the type of landscapes within each county surrounding the pumpkin fields (e.g., acreage of soybean or forest) has an effect on the levels of soybean aphids or aphid-vectored-virus we find. We hope to conduct this study again next growing season. This research will be my doctoral project as a graduate student of Entomology, and is conducted under the direction of my advisor, Ian Kaplan, an Assistant Professor of Insect Ecology and Specialty Crops with the Entomology Department of Purdue University. Please contact me at **gangelel@purdue.edu** with any questions/observations, or if you would be interested in helping us by participating in this project in future years.

Upcoming Events and Winter Programs

Variety Trial Meeting - The Southwest Indiana Melon and Vegetable Growers Association will hold their winter technical meeting on December 1, 2010 in the basement at the Southwest Purdue Ag Center in Vincennes. The catered dinner will begin at 6 p.m. After dinner, Shubin Saha will present results from the 2010 muskmelon and watermelon variety trials conducted at the Southwest Purdue Ag Center. Also at this meeting, growers who are members of the Southwest Indiana Melon and Vegetable Growers Association will decide when and where the 2011 winter/spring meeting will be held. Those attending must RSVP by November 19 in order to attend. Call (812) 886-0198 and ask for Sara Hoke. There will be a $5 charge per person for those who are not members of the Southwest Indiana Melon and Vegetable Growers Association.

Indiana Vegetable Growers' Association Board Meeting - The IVGA board of directors will meet in early December. If there are issues you would like to bring to the Board's attention, please email **ivga@ivga.org**, or contact President John Hilger at (260) 438-7768.

January 4, 2011: Illiana Vegetable Growers' School. Teibel's Restaurant, Schererville, IN. Registration brochure available in early December under Events at **http://www.hort.purdue.edu/fruitveg/** . Call (219) 531-4200 ext. 4206 or email **ws_bc@pnc.edu** to request a brochure.

January 18-20, 2011: Indiana Horticultural Congress, Indianapolis, IN. Register online at **http://www.inhortcongress.org/**, or watch for a registration brochure in the mail. Contact (765) 494-1296 to request a brochure.

January 19, 2011: Indiana Vegetable Growers Association Annual Meeting, at Indiana Horticultural Congress.

Winter Program Descriptions - *(Liz Maynard)* - Educational programs offered by Purdue this winter include information for both new and experienced producers. In the NW corner of the state, just after the New Year begins, the Illiana Vegetable Growers' School in Schererville will be a full day of learning and networking. People who attend this program regularly, know that Rick Foster will have useful information about insects. This year he'll speak not only about corn earworms, but also about a bug new to Indiana that will expand your vocabulary (maybe) and threaten your crops (hopefully not), and about new research on insects in and out of high tunnels. It always seems to be a challenge to keep pumpkins weed-free all season, and Steve Weller will share tips on how to do that. Mohammad Babadoost will join us from Illinois to discuss vine crop diseases. After the famous Teibel's fried chicken luncheon, one afternoon session will include organic growers' experience and organic research results, and the second, running concurrently, will include the vine crops variety research results of Shubin Saha at SWPAP, and additional topics. This is a fun and social meeting, a good place to get to know other growers and talk to suppliers in the business display room.

The Indiana Horticultural Congress is scheduled for Jan. 18-20 in Indianapolis. This conference includes programs for vegetable and melon farmers, farm marketers, fruit growers, agritourism operations, wine grape producers and winemakers, processing tomato growers and organic farmers. There are several sessions of particular interest to fresh market vegetable producers. On Tuesday, food safety on the farm (GAPs and GHPs) will rule most of the day. Morning topics will likely include how to be prepared for product traceback and recall, and how to sample, test, and treat water used in the field and packing shed. After lunch, an overview of food safety practices for the farm will lead into a discussion of 'what does food safety look like on my farm?' At the end of the afternoon FamilyFarmed.org, a non-profit from Chicago, will offer a Wholesale Success workshop and Meet the Buyer reception. A full day of agritourism topics is also scheduled for Tuesday.

Wednesday at IHC will start with a special session on soil health. Presenters include Lori Hoagland from the Dept. of Horticulture, who will explain the various components of soil health and ways to measure them, and Steve Hawkins from Purdue Ag Research Programs who will discuss compost. Wednesday afternoon will feature Tim Coolong from Univ. of Kentucky speaking about drip irrigation, and additional topics on vegetable and melon production, including Dan Egel, Purdue University, speaking on Phytophthora blight of cucurbits. After the session, the Indiana Vegetable Growers' Association will hold its annual business meeting. Members are encouraged to attend.

The Raw Products program, also on Wednesday, offers a full day of information about processing tomato production. The program will include both CCA and CEU credits, number to be determined.

Vegetable growers who sell at farmers' markets will be interested in the panel discussion about farmers' markets, also scheduled for Wednesday afternoon.

After other educational programs end on Wednesday, a Pesticide Applicator Recertification Program is planned for those who need to earn credits and have attended pest management sessions during the day.

On Thursday morning, vegetable presentations will include pest management updates and reports on tomato, summer squash, and sweet corn variety trial. A high tunnel workshop will run most of day. Private Applicators Recertification Program (PARP) credit will be offered Thursday with technical sessions offered throughout the day and a regulatory topic offered at 2:30 pm.

The Trade Show will run from mid-day Monday until Thursday afternoon. People who do business with Indiana vegetable growers attend this show and they want to talk to you.

So, take time to check through the IHC brochure when it arrives in a couple of weeks, and send in your registration! We look forward to seeing you there.

Future Webinars - Below you will find information on 2 series of webinars that are scheduled to take place this winter. The contact for both series is Roy Ballard, **rballard@purdue.edu** or (317) 462-1113.

The Growing Green-Sustainable Vegetable production series, "Growing vegetables for Pleasure and Profit" is designed for advanced home gardeners, market gardeners and commercial vegetable producers. The series will be held from 9:30-11:30 am on February 8, 15, 22 and March 1, 8.

The Growing for Market 2011 series - The Purdue school for direct marketers is another webinar based program and will be held on Feb 2, 9, 16 from 6:30-9:00pm.

Indiana Vegetable Growers Association

Membership Renewal / Application for 2011

Benefits of IVGA Membership

- Midwest Vegetable Production Guide for Commercial Growers, 2010 edition (ID-56) (available Jan. '10)
- Vegetable Crops Hotline subscription
- Listing in IVGA Directory of Wholesale Vegetable Producers (optional)
- Your web site linked on www.ivga.org
- Corporate members only: free ad on www.ivga.org
- Networking with other vegetable growers

To renew or join, correct or fill out the form below and send in with your check payable to IVGA.

The information below will be printed in the membership directory that is sent to members only. It will also be used to mail you the Vegetable Crops Hotline, to fax or e-mail the Hotline Bulletin, and for IVGA correspondence. Please complete or correct if necessary. If you would like anything omitted from the directory, please indicate below.

Annual IVGA memberships expire each year on 12/31

First _____ Last _____

Company _____

Address 1 _____

Address 2 _____

City, State, Zip _____

tel. _____ fax _____

e-mail _____

website _____

ID-56 Delivery: Please indicate whether you will pick up your copy of the ID-56 at one of the following meetings: IHC (Indiana Hort Congress 1/19-21/10), IVGS (Illiana Veg Growers' School 1/5/10), SW In. Melon Mtg. If you do not pick it up it will be mailed in March.

☐ IHC ☐ IVGS ☐ SW ☐ MAIL ☐ OTHER

Would you like to receive **free subscriptions** to trade magazines that may be offered to IVGA members?

☐ yes ☐ no

Check here to OPT OUT of hard copy Vegetable Crops Hotline. If you check yes announcements will be sent by e-mail but no paper copy will be sent. OPT OUT ○ yes ○ no

Membership Type

☐ Regular, $35.00/year
☐ Industry/Corporate, $75.00/year

Make Check Payable to: Indiana Vegetable Growers' Association (IVGA)
Return to:
Indiana Vegetable Growers' Association
c/o L. Maynard, Purdue North Central
600 Vale Park Road
Valparaiso, IN 46383

Office Use Only

Check no. **Date Rec'd.**
Check Date **Rec'd. by**

The **Indiana Vegetable Growers' Association Directory of Wholesale Vegetable Producers** will be updated for 2009. To be included, please review your information below and make any necessary changes or additions. The wholesale directory is available to anyone who requests it and will be posted on the web. Indicate quantity of each item: S=small quantities; X=wholesale quantities; T=semi truckload quantities. Indicate certified organic: O.

Contact information for Wholesale Directory, if different from elsewhere on this form:

contacts _____ _____

phone1 _____ phone2 _____

fax _____ phone3 _____

business/address _____

_____

e-mail _____

website _____

asparagus		onions_bulb	
beet		onions_green	
blackberries_raspberries		peppers_bell	
broccoli		peppers_hot	
cabbage		potatoes	
cantaloupe_muskmelon		pumpkin	
cauliflower		radishes	
chrysanthemums		snap_bean	
collards_mustard_turnipgreens		squash_summer	
corn_stalks		squash_winter	
corn_ornamental		strawberries	
cucumber		sweet_corn_bicolor	
eggplant		sweet_corn_yellow	
gourds_ornamental		sweet_corn_white	
herbs		tomato	
other_crops		turnips	
kale_1		watermelon	
pumpkin_mini_2		daylilies_6	
spinach_3		apples_7	
straw_4		peaches_8	
lettuce_5		tomatillo_9	