Wisconsin Crop Manager

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Brown Marmorated Stink Bug

Bryan Jensen, IPM Program

The Brown Marmorated Stink Bug (BMSB), *Halymorpha halys*, is an invasive, exotic insect pest recently introduced into the United States (Pennsylvania, 2001), and even more recently in Wisconsin. The first detections of BMSB in Wisconsin were adults in March 2010. Two additional adults were also collected the following November, one each in Dane and Manitowoc Counties. Unverified reports of BMSB have subsequently come from Polk and Ozaukee Counties. Wisconsin is listed as a state with "sightings only" because only the adult life stage was documented. Neither eggs nor nymphs have been documented in our state. This status is likely to change as more people will be monitoring and scouting for this insect in the coming growing season. Additionally, the Wisconsin Department of Agriculture, Trade and Consumer Protection will continue its monitoring program.

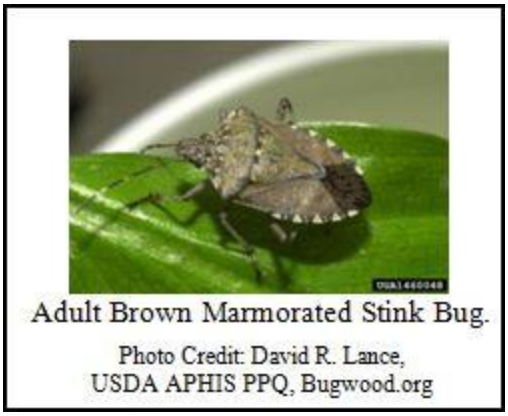
BMSB has piercing sucking mouth parts and has a very wide host range which includes field, vegetable, fruit and ornament crops. It additionally has been a nuisance invading homes and other dwelling looking for overwintering sites. To date, the majority of damage has been found in the east coast and mid-Atlantic states on fruit crops. However, significant damage has also been found on field crops in those same areas. Because of the recent detections in Wisconsin, it is worth your time and effort to be aware of BMSB and its potential for damage in Wisconsin.

Potential for Damage

The BMSB has yet to be observed causing damage to field crops in the Midwest. It has been observed causing economic damage on corn and soybean in the Mid-Atlantic States. Adults and nymphs feed on plant juices and/or on immature seeds. In corn, they feed thorough the husk and inhibit developing kernels. In soybeans they feed through the pod which results in shrunken and or shriveled seed.

Identification

The adult BMSB is very similar in size, shape and appearance to our native stink bugs, especially the brown stink bug. BMSB is approximately 5/8 to 3/4 inch long and has the typical "shield" shaped appearance of other stink bugs. However, there are identifying characteristics which are useful for accurate identification. Identifiable characteristics of the adult BMSB are 1) alternating light to brown spots on the outer edge of their abdomen 2) antennae with alternating brown and light bands 3) eyes which are dark red and 4) the upper edge of the shield is smooth. Many of the native stink bugs have a "toothed edge". BMSB do have brown/white mottling; however, this characteristic does not separate it from our native brown stink bug. Other species of insects such as squash bugs and leaf footed bugs may be similar in color to BMSB, but they do not have the characteristic shield-shape of stink bugs. If you are unsure of your diagnosis, please collect specimens (or high quality, clear digital pictures) and bring them to your local county extension agent for accurate identification.



Adult Brown Marmorated Stink Bug.

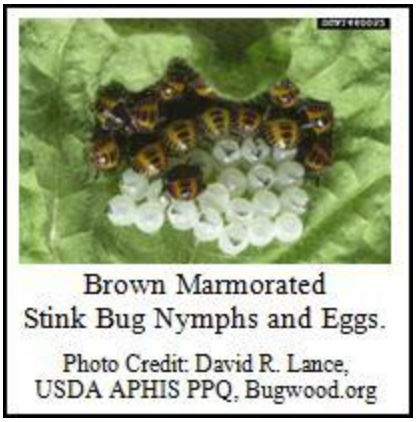
Photo Credit: David R. Lance, USDA APHIS PPQ, Bugwood.org

The immature stages, called nymphs, are smaller than adults and range in size from a pin head to ½ inch in length. Nymphs are oval and have dark red eyes similar to the adults. Nymphs do vary in color and appearance with age. Initially, they range

in color from a yellowish red to a creamy white with reddish spots just prior to turning into adults. BMSB eggs are light green to yellow, barrel shaped and found in clusters of 20-30 eggs on the undersides of leaves.

Brown Marmorated Stink Bug Nymph.

Photo Credit: David R. Lance, USDA APHIS PPQ, Bugwood.org



Brown Marmorated Stink Bug Nymphs and Eggs.

Photo Credit: David R. Lance, USDA APHIS PPQ, Bugwood.org

LOOK A LIKE!
Brown Stink Bug
Photo Credit; Russ Ottens, University of Georgia, Bugwood.org

Vegetable Crop Update 14 plus New Alerts

Amanda Gevens, Extension Plant Pathologist in Potatoes & Vegetables University of Wisconsin Department of Plant Pathology

Included in this issue:

Crop updates in potatoes, processing, and fresh market veg Insect updates: potato leafhopper, onion thrips, saltmarsh caterpillar, Colorado potato beetle, European corn borer Late blight & early blight updates Cucurbit, basil, and onion downy mildew updates Potato petiole nitrate sampling update.

http://ipcm.wisc.edu/LinkClick.aspx?fileticket=XtRQfKaJ2%2b0%3d&tabid=115&mid=675

Preliminary Wheat Yields

Shawn Conley, Soybean and Wheat Extension Specialist

Spotty rains and high humidity have somewhat slowed wheat harvest, however progress is being made across Southern WI. We harvested our Janesville winter wheat variety trial yesterday (7/19/11) and will move on to Lancaster today. Grain moisture was relatively high (19%) as we started cutting borders and fill at 12:30 pm. Once we entered the plots grain moisture was <17% and dropped to 13% by the end of the day. Preliminary data (not adjusted for moisture) showed yields varied from 70 bu per acre to the mid-90's, variety dependent. Test weights were also very good and roughly averaged 59.5 lb per bu.

Biggest Weed at the Weed Doctor's Booth at Farm Technology Days

Mark Renz

While only three weeds were submitted for the biggest weed contest, the submissions were exceptionally big at the 2011 Weed Doctors Biggest Weed Contest at Farm Technology Days. Once again the winner was common burdock, submitted by Neal Koepke from Edgar Wisconsin. Neal's burdock was 95 inches tall and 95 inches wide. Since we calculate the winner based on the volume of the weed (height x width), burdock easily beat the more slender common mullein (95" x 46") and angelica (105" x 43") samples sent in by Val and Ken Critzman of Ettrick Wisconsin. While the winning weed was a little bit shorter than the 2010 winner (also burdock), the width of this year's winner was nearly 50% wider than last year's winner.

We will again be holding this contest next year at FTD in Outagamie county, so start scouting fields this fall!

Use Caution if Planting Oilseed Radish on Highly Erodible Soil Types

Heidi Johnson, Jefferson County UWEX Agriculture Agent, Jim Stute, Rock County UWEX Agriculture Agent

Using oilseed radish as a cover crop after winter wheat has been steadily increasing in popularity. Trademarked and sold as "Tillage" or "Groundhog" radish, this cover crop has been particularly popular in no-till production due to its large tap root that seemingly helps to alleviate soil compaction and aerate the soil. It also winter kills, decreasing the need for additional herbicides in the crop rotation (figure 1). However, there is a word of caution for choosing radish as a cover crop on highly erodible soils.

Figure 1: Oilseed radishes decomposing in corn field in late May.

Figure 2. Corn planted into wheat and oilseed radish residue.

Figure 3. Soil loosened by oilseed radish washed out in former radish rows

Figure 4. Residue-cleared corn rows also provided a pathway for water

This past spring we examined a no-till corn field in southeast Wisconsin which suffered significant erosion shortly after corn emergence. Radishes had been planted into wheat stubble in 30-inch rows in 2010 for the purpose of "biotillage" (figure 2). Field observations suggest that the radishes did a good job of loosening the soil in rows, which left it vulnerable to water erosion. Rills formed down the decomposing radish rows (figure 3). Lack of surface cover and a sloping field allowed water to gain momentum and create larger wash-outs. Residue-cleared corn rows also provided a pathway for the water and increased soil loss (figure 4).

This observation is not meant to suggest that tillage radish should not be used as a cover crop but provides a cautionary note to growers. Using the radish as a sole cover crop on sloping or erodible fields may create this undesirable side-effect, especially if planted in wide rows with close spacings between plants. Oilseed radish planted as a part of mix of species such as oat may help to resolve some of these challenges by providing additional soil cover into the spring.

This also provides a reminder that certain cover crops may work better in certain fields over others. Cover crop selection should obviously be based on its fit within the cash crop rotation but specifics of individual fields should also be brought into the selection process.

There has been limited research done on oilseed radish in Wisconsin, although several projects are being initiated this summer. Farmer observation, such as this, will help to build a working knowledge of radish and make the most of its benefits in standard crop rotations.

Western Bean Cutworm Egg Masses and Larval Hatch – Scout Field and Processing Sweet Corn Fields

Eileen Cullen, Extension Entomologist

Careful field scouting in field corn and processing sweet corn for western bean cutworm egg masses and small larvae should be under way now.

Economic threshold determination and treatment decisions are much easier to make at the egg mass and small larval stages before larvae have moved to silks and into the ear via silks or through the side of the husk, after which point treatment will not be effective.

Egg masses have been reported to me this week on processing sweet corn in the central sands area near Hancock in fields that are just pre-tassel and at tassel. Field corn crop consultants have also reported sighting first egg masses over the past week in southern and central WI field corn.

WDATCP and cooperators are running 160 western bean cutworm pheromone traps in Wisconsin since late June/early July. The trap network will continue to monitor the annual flight through peak emergence and to the end of the flight.

Check the WDATCP Wisconsin Pest Bulletin regularly for percent moth emergence based on trap captures and western bean cutworm degree-day accumulations in your area. The Wisconsin Pest Bulletin is issued weekly, usually on Thursdays, with the latest trap catch abundance and distribution and an accounting of western bean cutworm degree-day accumulations.

Below are some key field scouting points and economic thresholds to remember for non-Bt corn fields, refuge corn acres, and processing sweet corn fields. Not all Bt field corn hybrids contain the Cry1F or Vip3A traits for western bean cutworm control. Check your Bt hybrid if you need to determine whether or not it has western bean cutworm included in the spectrum of insects controlled.

Please refer to the July 6, 2011 WCM article 'Western Bean Cutworm Moth Flight Has Begun' for further review and photos. Much of that information is repeated here as an alert to WCM readers that egg mass detection and larval hatch are underway and fields should be scouted now.

- Using the western bean cutworm phenology model, scout corn no later than 1,320 degree days (base 50F) when 25% of the moth population will be in flight.
- Western bean cutworm pheromone traps placed at or near your corn fields is a better indicator of when to start scouting. Begin scouting as soon as 1 moth is captured in your trap or nearby reference trap.
- **Remember, there is no correlation at this time between numbers of western bean cutworm moths in a pheromone trap and severity of infestation in a corn field. Even if your traps are catching only a few moths per week, begin scouting for eggs and larva.**
- Moths have been captured in southern and central Wisconsin as far north as Waushara and Wood Counties, and west to Monroe County. Please check the WDATCP Wisconsin Pest Bulletin regularly for updated moth captures and peak flight information throughout the 160 trap pheromone network.
- Adult female moths are most attracted to corn just before tasseling and lay eggs on the upper leaf surface, primarily on upper leaves, but also near the ear zone.
- **For field corn, the economic threshold of 5% field infestation with egg masses and small larvae is recommended** (see the Entomological Society of America's Journal of IPM article here).
- **Processing sweet corn threshold is 4% field infestation with egg masses and small larvae.**

Biological Control Parasitoid Released for Emerald Ash Borer Does Not Harm Honeybee Colonies

Eileen Cullen, Extension Entomologist

Entomolgists with University of Wisconsin-Madison and USDA APHIS have initiated a biological control program for Emerald Ash Borer. Like other classical biological control programs (e.g. parasitod wasps for biological control of alfalfa weevil and soybean aphid), the wasps are very tiny, stingless insects that are host specific to Emerald Ash Borer.

Parasitoids are identified from the pest insect's native geographical range, in this case East Asia, where the pest and natural enemy developed in association with one another. Their stinger has been modified to an ovipositor that enables them to lay an egg in the Emerald Ash Borer. The egg hatches into a larva that used the Emerald Ash Borer as a food source, killing it in the process.

Although Emerald Ash Borer is not a field and forage crop insect pest, UW Extension has received inquiries from concerned honey bee keepers under the impression that the parasitoid wasps released for Emerald Ash Borer can harm honey bees.

It's not clear how or where this impression originated. Likely, someone interested in the 0.04 to 0.2 inch parasitic wasps that specialize on Emerald Ash Borer, googled "Asian wasp" "Japanese wasp" or "Asian giant hornet". Such searches will bring up a large (2 inch) vespid wasp native to temperate and Eastern Asia. This insect has no association with Emerald Ash Borer and has not been released for any biological control program in Wisconsin or the U.S., but it can attack honey bees.

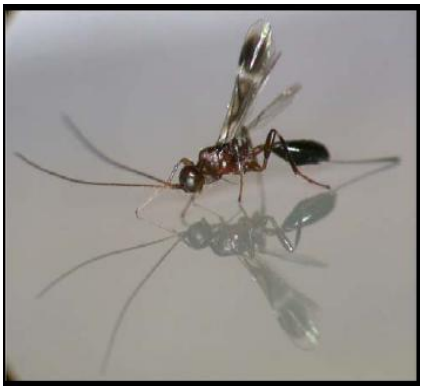
Dr. Ken Raffa, Professor of Entomology (forest entomology and insect ecologist) and his research assistant Todd Johnson developed the following fact sheet to clarify the situation for Wisonsin bee keepers and other interested agriculture professionals.

Please click here for the one page fact sheet titled Biological Control of Emerald Ash Borer.

Biological Control of Emerald Ash Borer

***Tetrastichus planipennisi* Yang (Braconidae)**

This tiny (~0.08 inches), stingless wasp is a specialist, endoparasitoid from the native range of the Emerald ash borer (EAB). It was discovered inside EAB larvae in China in 2006. It has approximately four generations per year. Adults live for a couple of weeks, with the remainder of their lives spent inside EAB larvae under the bark.



***Spathius agrili* Yang (Braconidae)**

This small (~0.2 inches), stingless wasp was first discovered in China during 2003-2004 in EAB-infested ash. This specialist, ectoparasitoid of EAB completes 3-4 generations each summer and fall. Adults live for a couple of weeks, with the remainder of their lives attached to EAB larvae under the bark.

***Oobius agrili* Zhang and Huang (Encyrtidae)**

The smallest of the stingless wasps (<0.04 inches) in USDA's biological control to control EAB, it could fit on the period at the end of this sentence. It is a specialist egg parasitoid of EAB that completes 2 generations during May-late August. Adults live for a couple of weeks, with the remainder of their lives spent inside EAB eggs under the bark.

Photos by USDA APHIS and Todd Johnson

Summarized from USDA APHIS information by K. Raffa and T. Johnson.
For additional information, please visit *www.emeraldashborer.info/biocontrol.cfm*

Glossary:

Biological control- Using predators, parasites and pathogens, or their products, to control pests
Ectoparasitoid- A parasitoid that lays its eggs on the outside of its host
Endoparasitoid- A parasitoid that lays its eggs inside its host
Parasitoid- Spends most of its life on or inside another insect, killing it
Specialist- Feeds only on one or very few closely related host(s)