



## The Ohio State University Extension Vegetable Crops

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### **The Honey Bee, Pesticides, and Cucurbit Puzzle** – *Reed Johnson, Dept. of Entomology*

Cucurbit crops are developing a bad reputation among beekeepers. In a national survey of beekeepers conducted in 2012 by the Pesticide Research Institute ([http://www.pesticideresearch.com/site/?page\\_id=1751](http://www.pesticideresearch.com/site/?page_id=1751)) squash, melons and cucumbers were associated with a disproportionate number of bee kills for the relatively small number of acres planted in these crops. While no formal surveys on this topic have been conducted in Ohio, anecdotal reports from beekeepers indicate that hives used for pumpkin and cucurbit pollination often suffer ill effects. There are a number of possible explanations for poor bee performance in cucurbits, and honey bees certainly have a wide range of health problems unrelated to grower's practices, but the potentially harmful effects of pesticide use in these crops cannot be ruled out.

It is no secret that the national stock of honey bees has been suffering over the last decade. So far beekeepers have managed to work themselves and their bees a little harder each year to make up for these losses. The result of this increased effort has been a substantial rise in the costs associated with maintaining a hive of bees. The cost to repopulate a dead colony with a "package" of bees may push over \$100 for the first time in 2014 – and this cost does not include the costs of feeding, medicating and managing a colony until it grows into a full-size productive hive. The day may be coming when a hive of honey bees will be too valuable to rent out for pollination in any crop that is perceived as potentially dangerous to bees. For this reason it is important to try to determine why cucurbits seem to pose such a hazard to bees so that any problem can be identified and solved. Determining the potential for pesticides (and pesticide combinations) used in cucurbits to harm bees is a relatively easy first step.

We are asking for your assistance to help us identify any pesticide use patterns in any cucurbit crop that might shine a light into the somewhat negative relationship between honey bees and this crop group. If you have two minutes to spare on 7 questions about

honey bees & pesticides, we would welcome your input. Any data collected in this survey will be anonymous, and the results will be posted in a later VegNet article.

<http://www.surveymonkey.com/s/beepuzzle>

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### **Insect update** – Celeste Welty, Dept. of Entomology

Cucumber beetles were late in appearing this year. The beetles have been reported to be heavy in some sites in northern Ohio but much lighter than usual at our research farms in central Ohio (Franklin and Clark Counties). With the weather finally warming up, these are likely to be more noticeable in the next week or two.

European corn borer emerged later than usual this year. Our pheromone trap at Columbus was set up on 17 May but the first European corn borer moth was not caught until 10 June. In an average year, the first catch in Columbus is around 25 May. Our backlight trap at Columbus detected the first corn borer moth on 29 May, and some are still being detected this week. The number of moths per pheromone trap per week in the past week as 1.5 in Columbus (downs from 2.5 last week), 0 in Springfield (same as last week), 12 in Ottawa County (first week reporting). Traps at two sites in Sandusky County had 7 moths (up from 2 last week), and 12 (first week reporting). There are reports of borer larvae found in tassels in Wayne County. Peppers that are fruiting and sweet corn in tassel and silking stages are at risk of infestation by this borer.

Corn earworm is already present this year, which is earlier than normal, but it is at low density. The number of corn earworm moths detected in pheromone traps in the past week was 0 and 0 in Clark County, 1 and 0 in Franklin County, 0 in Huron County, 0 and 3 in Sandusky County, and 5 in Ottawa County. Early sweet corn plantings that are silking are at risk of infestation by corn earworm. Even when earworm moth numbers are low, they can cause heavy damage in early sweet corn because they concentrate in the small patches of early corn that are more attractive to them than the main season field corn, which is not yet silking.

The adult of squash vine borer was first detected in pheromone traps on 5 June in Columbus; two traps this past week detected 24 and 14 moths. Two traps in Clark County caught 11 and 0 moths in the past week. The highest risk of infestation by this pest in squash and pumpkins is this week and for the next four weeks.

One insect that has been reported at unusually heavy density on a variety of crops and weeds is the lady beetle. Lady beetle adults of several species are abundant, as well as larvae and pupae (shown below). Larvae are alligator-like, they are typically black with some yellow or red markings, usually with tufts of short hairs. Pupae are found on leaves; they are inactive, usually marked by orange and black stripes. These are beneficial insects that feed on aphids and other soft-bodied prey.



The brown marmorated stink bug is a new pest that we are attempting to monitor by traps. Traps in sweet corn in Columbus are already detecting this stink bug. This bug has a wide host range. Periodic sampling of many crops and landscape plants in Maryland in 2011 showed a sequence invasion of brown marmorated stink bugs into crops. The earliest populations were found on Paulownia trees in late May and on raspberries in mid-June. They were found on eggplant, okra, and peaches starting in late June. They were found in sweet corn and peppers in early July, on green beans and field corn in late July, and on soybeans in early August. In most crops, they were more abundant on field edges than in field interiors.

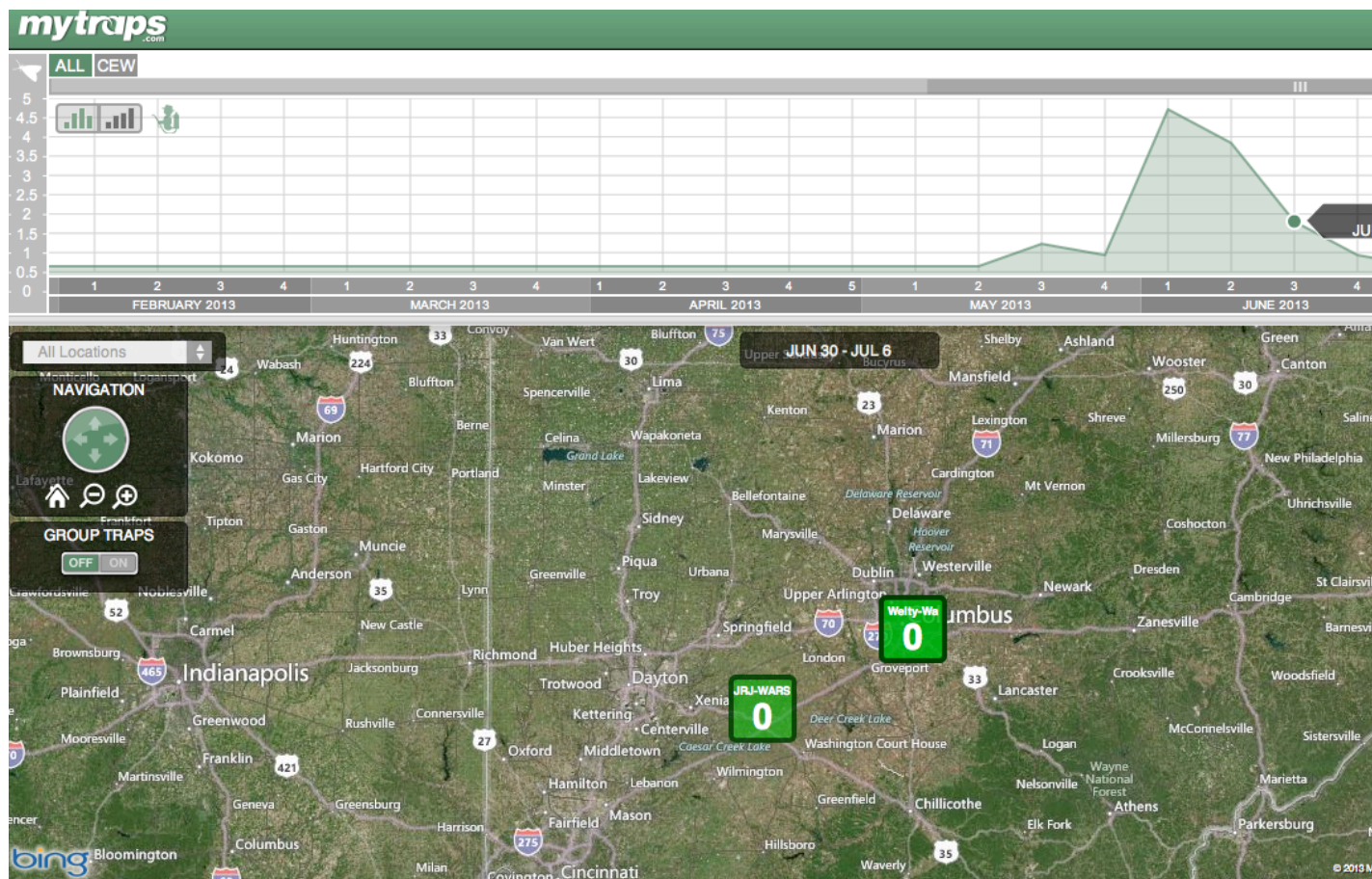
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### **A Quick Introduction to MyTraps – Jim Jasinski, OSU Extension IPM Program**

Starting this season, insect trap catch information for most vegetable and fruit pests monitored around the state will be displayed using a website called MyTraps.com. While we are still working out some of the intricacies of the program, this website allows users (Growers, Extension educators, Homeowners, Consultants, and other Agribusiness personnel) to interact with the data visually to see where the traps are located and what the insect counts are on a daily, weekly, or monthly time scale as appropriate. There is no need to create a login username or password; all the links are freely available to the public and will eventually be posted at Dr. Celeste Welty's website (<http://bugs.osu.edu/welty/>).

Below is a screen shot of what the MyTraps web interface looks like. Notice the screen is split into a topographical bottom section which displays the trap locations around the state. Users can zoom in and out using the "+" or "-" feature on the left hand side of the screen. The entire map can also be moved around and centered anywhere in Ohio or surrounding states. The top of the screen represents the average trap catch for that species, in this case

the Corn earworm. By choosing the daily, weekly, or monthly button in the upper right hand of the screen, shifts the graph accordingly. Grab the grey vertical bar and you can scroll back in forth in time to see how the populations change at each trap location.



We are waiting for a few modifications and updates to the MyTraps website which will improve the overall user experience and add even more functionality. Because this is a radically different way to display insect trap data, we are interested in what the end user (grower, Extension educator, consultant, etc.) thinks about this new system or if you have any comments to improve the user experience or functionality. If you should need it, there is also a nice short video tutorial on how to use the site posted at MyTraps.com website.

Here is a partial list of fruit and vegetable pests available on the Ohio State University Extension MyTraps website. Please note that not all sites in monitoring network are reporting data yet.

Beet Armyworm - <http://mytraps.com/share/?key=562749594>  
 Black Cutworm - <http://mytraps.com/share/?key=501132003>  
 Corn Earworm - <http://mytraps.com/share/?key=361200652>  
 Codling Moth - <http://mytraps.com/share/?key=233020194>  
 Dogwood Borer - <http://mytraps.com/share/?key=940932412>

European Corn Borer - <http://mytraps.com/share/?key=525219704>  
Fall Armyworm - <http://mytraps.com/share/?key=2100159199>  
Lesser Appleworm - <http://mytraps.com/share/?key=1482740577>  
Lesser Peach Tree Borer - <http://mytraps.com/share/?key=210935517>  
Oblique Banded Leaf Roller - <http://mytraps.com/share/?key=479047326>  
Oriental Fruit Moth - <http://mytraps.com/share/?key=1245985701>  
Peach Tree Borer - <http://mytraps.com/share/?key=1274817114>  
Red Banded Leaf Roller - <http://mytraps.com/share/?key=186847816>  
San Jose Scale - <http://mytraps.com/share/?key=1274518653>  
Spotted Tentiform Leaf Miner - <http://mytraps.com/share/?key=1600490928>  
Squash Vine Borer - <http://mytraps.com/share/?key=124952177>  
Southwest Corn Borer - <http://mytraps.com/share/?key=2114945751>  
Tufted Apple Bud Moth - <http://mytraps.com/share/?key=544820219>  
True Armyworm - <http://mytraps.com/share/?key=3228265>  
Variegated Cutworm - <http://mytraps.com/share/?key=228864892>  
Variegated Leaf Roller - <http://mytraps.com/share/?key=837019697>

**Disclaimer** Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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