2013 CCE Summer Internships

CATEGORY ARCHIVES: EMPLOYING BIOLOGICAL CONTROL TO MANAGE BROWN MARMORATED STINK BUG (BMSB) IN ORGANIC VEGETABLE PRODUCTION SYSTEMS

Week 12: 9/12 – 9/16

Posted on **August 31, 2013** by **kak246@cornell.edu**

This summer internship was a great experience; I learned a lot and had a lot of fun. with this study we were able to find that Beauveria has approximately an 80% success rate, and to conclude the study, the organic sites will spray their fields with this natural pesticide.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 11: 8/5 – 8/9

Posted on **August 12, 2013** by **kak246@cornell.edu**

Hepworth still had high numbers of BMSB this week as well so we started cutting down seed pods from the surrounding Ailanthus trees there to help us collect more BMSB to keep in the lab's rearing room to use for different pesticide trials. Bioassays would consist of 3rd instar BMSB being exposed to leaves that had been sprayed with a pesticide to test if the pesticide has any effects on them. Multiple different trials were set up to see the different effects each type of pesticide had on the BMSB.

Unfortunately, the BMSB brought back from the monitoring traps have not shown any of the Day Glow Flourescent material that they would have gotten on them if they had been exposed to the Beauveria, but we have been catching enough in the Beauveria traps to counteract the lack of exposure in the monitor traps. The BMSB collected in the trap continue to be watched each day to see if signs of Beauveria show up, and we are still finding success with its effects.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 10: 7/22 – 7/29

Posted on **August 12, 2013** by **kak246@cornell.edu**

This week BMSB numbers at Hepworth Farms were high again, and we were able to collect dozens from the traps as well as high numbers from the surrounding area as well. We've found less amounts at Fishkill, mostly due to the location being more southern compared to Hepworth, and even smaller numbers at Crist Bros, which in the past have shown BMSB to come out later on. Ailanthus trees are native to Asia like BMSB, so they tend to be attracted to the seed pods of the trees. We began cutting down seed pods to be able to collect high numbers of BMSB and hopefully find some egg clusters on them as well. Most of the stink bugs caught in the Beauveria traps have been showing signs of the fungus at approximately an 80% success rate.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 9: 7/15 -7/19

Posted on **July 19, 2013** by **kak246@cornell.edu**

Even more BMSB of all different stages were found this week. We were able to collect at least one of each instar and a few adults. 14 were collected from one trap and around the perimeter of it. We found a few at Fishkill Farms, but the majority were at Hepworth this week as well. To be able to collect a larger amount of BMSB, at Hepworth Farms a light trap was set up to attract BMSB at night, causing them to be exposed to an insecticide and fall into netting. About 200 were caught in this trap in one night. One of the Beauveria traps had multiple BMSB dead that had fallen to the ground beneath it. This was strange because the Beauveria doesn't kill them right away, but it turns out a large jumping spider has decided to live at the entrance to the trap and eat any BMSB that attempt to enter, altering our data.

— This spider is in the process of eating a Brown Marmorated stink bug.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 8: 7/8 – 7/12

Posted on **July 19, 2013** by **kak246@cornell.edu**

Towards the end of this week, we started finding dozens of Brown Marmorated stink bugs mostly at the 2nd instar stage. Due to the numbers being up, we began doing perimeter searches to see if any BMSB eggs or BMSB were in the surroundings of the traps. Also, to try a different method, at Crist Brothers Farms a netting trap treated with an insecticide was set up so the BMSB would fly into it and then fall into the netting to be collected. The highest amounts are still being found at Hepworth Farms. We set the fluorescent idea into motion by drilling a hole into the top of each trap to slide the test tube cleaners into and hold them in place. The brush part would then be dipped into the fluorescent material ensuring that the BMSB will rub against it on their way into the traps.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 7: 7/1 – 7/5

Posted on **July 4, 2013** by **kak246@cornell.edu**

We reapplied the beauveria solution and changed the #10 pheromone lures because they need to be changed every two weeks. We also brainstormed ideas on how to ensure the BMSB go through the fluorescent material upon entering the traps and decided to try using test tube cleaners to hold the Fluorescent material at the base of the trap, so that the BMSB will be forced to go through it into the traps. Some of the lab samples started showing signs of Beauveria spores growing on them as well, so the fungus is working. We found 5 more second instar BMSB and brought them back to the lab to monitor them.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 6 : 6/24 -6/28

Posted on **July 4, 2013** by **kak246@cornell.edu**

This week we improved on the numbers of BMSB and stages of them found. We were able to collect a couple of second instar BMSB from the traps when in past weeks, we had only been finding adults. We found two adult BMSB in the monitoring trap, but they did not show any fluorescent material on them. Each week we reapply the Beauveria solution and move the traps to the next sites on the maps, which are located along the perimeters of the farms.The BMSB brought back as lab samples have not yet been showing signs of Beauveria, but it takes approximately ten days to kill the insects.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 5: 6/17 -6/21

Posted on **July 4, 2013** by **kak246@cornell.edu**

This week it dried up a bit and was less rainy than the week before, which helped the project go a bit more smoothly. We added a fluorescent material to the entrances of the traps so that we will be able to check the BMSB in the monitoring traps under a blacklight to determine whether or not they have been exposed to the Beauveria. As stated earlier, we use a combination of different pheromones to attract the BMSB and this week we needed to changed all three. We also moved the lures to the sides of the traps to see if the pheromones would be released out of the traps easier. After changing the lures and moving them, 3 BMSB were found in two of the traps, two of which were brought back to the lab to see if the Beauveria has any effects on them.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 4: 6/10 – 6/14

Posted on **June 17, 2013** by **kak246@cornell.edu**

The weather was still not cooperating with us this week; it rained almost everyday which really put a damper on the study. We changed the filters to reapply the Beauveria solution, but the new filters didn't fit as well causing us to have to alter them. We had to shave a couple of inches off the tops of the filters to help them fit into the traps, and we moved the pheromones to the bottom of the traps to see if they would be able to get to the outside of the traps more successfully. Due to the rainy, muggy weather we unfortunately only found 1 BMSB at Hepworth's and no BMSB at any of the other sites.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 3: 6/3 – 6/7

Posted on **June 13, 2013** by **kak246@cornell.edu**

A combination of pheromone lures are used to attract the BMSB to the traps. One needs to be changed every 2 weeks, while the other needs to be changed once per month, so at the beginning of the week, we replaced the # 10 pheromone lures in all of the traps. Any traps that had BMSB in them were moved to the next sites on the maps of the farms, but traps where BMSB are not found remain at the same location for a week . Hepworth Farms seems to have the highest abundance of BMSB due to finding 11 stink bugs in one trap when at the other farms it's rare to find one. Due to all of the rain at the end of the week, it was harder to find BMSB, so hopefully the weather becomes somewhat drier and warmer to help this study to be more successful at all of the sites.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Log In

Cornell University Cooperative Extension

SEARCH CORNELL: Go

Pages People more options

Home

2013 CCE Summer Internships

CATEGORY ARCHIVES: EMPLOYING BIOLOGICAL CONTROL TO MANAGE BROWN MARMORATED STINK BUG (BMSB) IN ORGANIC VEGETABLE PRODUCTION SYSTEMS

Newer posts →

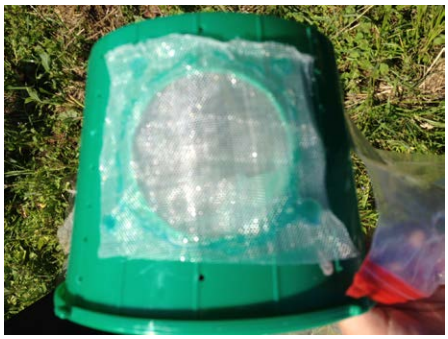
Week 2 – 5/27 – 5/31

Posted on **June 6, 2013** by **kak246@cornell.edu**

This week we checked the traps for any BMSB at the sites that they were placed in the previous week. Each trap is designed with pheromones, as stated last week, as well as half of a pool filter soaked in Beauveria to cause spores to grow on stink bugs exposed to the fungus. 20% of the stink bugs in the traps are taken back to the lab to sample and see how the spores are spreading and affecting the stink bugs. We brought back a lab sample total of 2 stink bugs and reapplied the Beauveria solution in each trap towards the end of the week. The traps where stink bugs were found were moved to the next sites on the map to get a sample from these the following week.

— Half of a filter, soaked in Beauveria solution

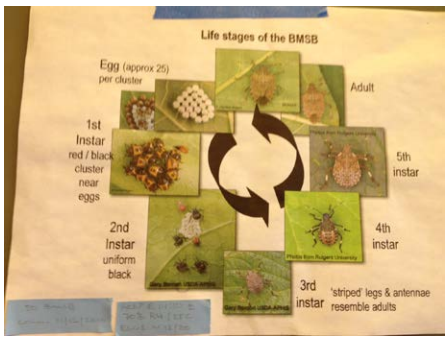
Different types of BMSB pheromones clipped to inside of trap



— Netting allows for pheromones to be sensed outside the trap

— Top half of the trap

— Site: Fishkill Farms



— Life stages of BMSB

— Trap is held onto stand with bungee cords

— BMSB Trap
Trap is placed on netting to be able to see any BMSB that may be at the bottom of the stand.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**

Week 1- 5/20-5/24

Posted on **May 27, 2013** by **kak246@cornell.edu**

Hi, I'm Kaitlyn Kelder and am currently in Animal Science/Agricultural Science at Cornell going into my sophomore year. This internship sparked my interest because my family owns and operates a fruit and vegetable farm in the Hudson Valley, and I thought it would be interesting to learn more about pest control and organic practices to control them while staying in my own area.

My week began with safety training about pesticide use and operating machinery as well as learning how to put together and set up traps for BMSB.

It was a successful kickoff to the summer by setting up the traps for the Brown Marmorated Stink Bug (BMSB) at all three of the sites planned on. They were set up at Fishkill Farms, Hepworth Farms, and Crist Brothers Orchards. The traps consist of a combination of pheromones within altered butterfly traps to attract and capture the stink bugs The traps have a tunnel-like opening at the bottom and are placed on top of a triangular stand so that the BMSB can go up into the traps and are not able to go back down. The whole set up is placed on top of netting to catch any stink bugs that may have died and fallen out. After setting up the traps, we returned to the sites later in the week to count and mark the insects, but unfortunately did not catch any BMSB. A couple of theories were out as to why the insects were not in the traps. The most likely one was due to the cooler weather that came through towards the end of the week, but we altered the traps as well to ensure that the pheromones were able to be sensed outside of the trap. Now, instead of small holes punctured up and down the sides of the traps large circles were cut out of the sides and covered in netting to allow for more sufficient release of the pheromones. Hopefully, this will help for monitoring the traps in this upcoming week.

Posted in **Employing Biological Control to Manage Brown Marmorated Stink Bug (BMSB) in Organic Vegetable Production Systems**