Cornell University Cornell Cooperative Extension Eastern New York Commercial Horticulture

VOLUME 5, ISSUE 15 AUGUST 3, 2017

Western Bean Cutworm– Implications for Sweet Corn Growers in Eastern NY Charles Bornt & Teresa Rusinek–ENYCHP

Western Bean Cutworm is an emerging pest in in our area that you should be aware of. This one is actually a native to North America and a long time pest in the high plains region of western US in corn and dry bean production. Over the past 10 years or so, WBC populations have been expanding, moving eastward, and are now found in most of New York. In the past 3 years, we've seen an increase in WBC moths caught in bucket traps in several sites in ENY where we've been trapping for sweet corn worm pests for many years. Last week we had several traps with 30-60 moths caught per week. Sounds scary; so should you be worried? High trap catches do not always mean high damage. But they are a good indicator that WBC are around and that you should scout fields. After consulting with a number of extension specialists to the west of us who have more experience with this pest, it is likely that in most cases you will control WBC with the same sprays you are putting out at tassel for ECB. However, if you have very low ECB pressure and are not putting out tassel sprays, there is a chance you can get caught with WBC *if* they are in your fields.

I have a very strong hunch that this is what happened last year when I received several calls from growers that were seeing damage in corn that they were picking but it did not look like corn earworm but ECB. It didn't make a lot of sense as ECB trap



Left: Newly hatched western bean cutworm and whorl leaf damage (Photo: Purdue.edu) Right: Newly hatched Western Bean Cutworm eggs found on sweet corn this week. (Photo: Chuck Bornt, CCE ENYCHP)

Table of Contents

able

Western Bean	
Cutworm	1-2
Wilted Cucurbi	ts2-3
Yellow Striped	Armyworm
in Onions	3
CDM Update	4
New Potato Po	st-Harvest
Handling	5
Cover Crops	6-7
Slug News	7
Corn Pest Data	8



continued on next page

VOLUME 5, ISSUEI5

catches were low to nothing and they were not seeing any typical damage in the tassel. They did not apply any tassel emergence sprays and WBC was there as indicated by the trap catches that we were seeing. WBC and ECB larvae look very similar, as does their damage when they are small, and can easily be mistaken for each other (Figure 1). Also be aware that only <u>the Bt varieties with</u> <u>the Vip3A protein control WBC.</u>

WBC moths typically lay eggs on corn while the tassel is just developing in the whorl. When the WBC eggs hatch, the larvae quickly move up the plant and into the whorl to feed on the developing tassel, where they are protected. When the tassel emerges, they are more exposed and start to move down to leaf axils and ultimately the silks to

feed. Once on the silks, they soon move into the ear and are again protected. Just like ECB, the WBC are exposed and susceptible to insecticide sprays when tassels emerge.

According to the growing degree day model, we are at about 50% emergence for much of the Eastern NY, so WBC moths will likely be emerging and laying eggs in corn through August. If adults are detected in traps in your area, scout late whorl or early tassel stage corn for egg masses on the upper leaf surface of the top 3 leaves (Figure 2). **The action threshold for fresh market sweet corn is 1%.**

Resources: Dr. Tom Hunt, Dept. of Entomology ; UN-L, Celeste Welty, Ph.D., OSU, Abby Seaman, NYS IPM.

Wilted Cucurbits: Not Treatable this Year, but Preventable Next Year Crystal Stewart, ENYCHP

We are getting calls about plants wilting in the field, often paired with questions about what to spray. There are two main issues which wilt most cucurbits: bacterial wilt and squash vine borer. Neither can be treated after symptoms are present, but perennial issues can be addressed through prevention next year. The first step is to identify which issue is present, and the next is to mark your future calendar with timely control!

Squash vine borer: We covered this pest earlier, but growers are still seeing the effects of this clearwing wasp. Larvae burrow through the stems, leaving piles of frass and wilted plants in their wake. If you split the stems, you may find an actual larva inside. If you are checking plants too late, the larva may have already departed to pupate.

Bacterial wilt: Bacterial wilt can be traced back to early cucumber beetle feeding. Some cucumber beetles carry a

start to clog up the vascular system of the plants. We generally see symptoms of bacterial wilt either when the weather is hot and dry or when plants have a heavy fruit set. Either way, plants need to be moving a lot of water, and they simply are not capable of doing so. Plants will wilt, present brown leaves with green veins, and start aborting fruit.

Why prevention instead of treatment? By the time you see the damage caused by these two pests, it is not possible to

bring plants back to health. The economically prudent option is to



Plants dying from squash vine borer feeding will have frass piles at the base of the stem. Depending on the timing, you might find a larva if you cut open the stem. Image: Ethan Grundberg.

type of *Erwinia* bacteria in their mouths, and when they feed on very young cucurbit plants they transmit the disease. Populations of bacteria slowly build up until they



VOLUME 5, ISSUEI5

PAGE

remove affected plants, which will be more susceptible to a variety of other issues and might increase overall disease load for the crop. However, timely treatment of cucumber beetles should be a priority on young cucurbits, and if squash vine borers are posing a serious problem

year after year, it may be worth doing a few well-timed insecticide sprays while the adults are flying in the spring. For information on both, please ask us or refer to previous newsletters. Just be sure to put these preventative management strategies on the calendar for next year.



A wilted plant with green veins on dying leaves generally indicated bacterial wilt. Often when symptoms are pronounced, if you cut a stem you can see streams of bacteria leaving the stem (left, image courtesy of APS)

Yellow Striped Armyworm in Onions Ethan Grundberg, ENYCHP

I received a couple of phone calls from growers last week expressing concern at finding some caterpillars in their onion crop. The culprit was identified as the Yellow-Striped Armyworm, a minor and infrequent pest of onions. The caterpillars make small holes in the leaf, then proceed to feed on the inside of

the onion leaf. Since they are inside of the plant, contact insecticides will not be effective at controlling them. Many of the same systemic products being used for onion thrips management, such as Minecto Pro, Exirel, and Radiant, should work against the yellow-striped armyworm as well. However, in the three fields where I found caterpillars, none was above 1% of plants showing damage, so an additional spray beyond thrips management is not recommended. The yellow-striped armyworm can, however, be a serious pest of other brassicas, cucurbits, and tomato fruit. If the caterpillars are caught early on in these other crops where they are not shielded from insecticides, labeled Bt formulations can also be used.



Large yellow-striped Armyworm nearing pupation



Notice the small hole opening where the caterpillar entered the leaf and the ragged edge feeding along the edge

VOLUME 5, ISSUE 15

Cucurbit Downy Mildew Update Ethan Grundberg, ENYCHP

Cucurbit Downy Mildew (CDM) continues to spread on cucumber plantings in the region, having been found in Orange, Rensselaer, Schoharie, Columbia, and Greene Counties as well as on Long Island over the past week. On Tuesday, August 1st, it was also found on a 3 acre kabocha squash field on the muck in Orange County. As always, check http://cdm.ipmpipe.org/current-forecast for the latest CDM epidemic spread forecast. It is worth repeating that the pathogen that causes cucurbit downy mildew DOES NOT cause downy mildew of onions, basil, or other crops. It is specific to cucurbits and, in fact, there are at

least five known cucurbit downy mildew strains that express different cucurbit host preferences.

Even if they are not showing signs of downy mildew, older plantings of cucumbers should be destroyed as soon as they are through being picked! We have seen several cases in the region of older planting that have been abandoned being infected first and serving as a source of inoculum to infest newer successions. If thorough disc harrowing is not an option, conventional growers can also apply gramoxone or other broad spectrum herbicides to older plantings to desiccate them and reduce the potential for CDM spore production.

According to Cornell pathologist Dr. Meg McGrath, "Broadspectrum contact protectant fungicides (Bravo, Maneb, Dithane, copper) provide some downy mildew control. Researchers in NC regularly conducting fungicide efficacy trials for downy mildew rated chlorothalonil (4 rating) better than mancozeb and maneb (3) and also copper (1)." However, see the July 27th edition of the ENYCH Veg News for the full list of

recommended fungicides for cucurbit downy mildew.

CDM can be difficult to distinguish from angular leaf spot (ALS) and even cucumber beetle feeding, especially during the early stages of infection. While the angular interveinal leaf yellowing on the top side of leaves can look similar, the lesions or feeding wounds on the bottom of the leaves are easier to tell apart. See the image below from Dr Beth Gugino of Penn State for a comparison between the two. The key to identifying downy mildew is the grayish purple fuzz on the bottom of the leaf.



The images below show more advanced cucurbit downy mildew symptoms on cucumbers in Orange County.



Cucumber leaf showing symptoms of both angular leaf spot and downy mildew. Downy mildew lesions have purplish gray sporulation on the underside of the leaves (upper right) while those infected with angular leaf spot do not (lower right). (Photos: Beth K. Guaino)





VOLUME 5, ISSUE 15

Hand Harvesting Early Potatoes Charles Bornt, ENYCHP

I know that early potatoes have been harvested for a couple of weeks now and I've gotten a few phone calls about potatoes breaking down before they can even be sold. I'm not surprised considering the amount of rain that we've had so far this season. However, there are a couple of very easy things to remember to help ensure you are putting quality potatoes out on the market.

First, one of the key components to ensuring the highest quality potatoes is proper vine killing. Minimally vine killing should occur 2-3 weeks before harvest to ensure the tubers set their skin, making the tubers more resistant to skinning and bruising. Vine killing can be done many different ways including flail mowing, flaming and chemical desiccants (see Table 1 for a list of approved vine desiccants).

Second, handle them very gently. These early tubers are very "soft" and bruise and skin very easily. The less you can handle them the better. Try to minimize how much they roll on the chain if you are using a digger and make sure that tubers are not falling from heights greater than 6 inches (this includes digging and handling).

Third, **Do not put harvested potatoes directly into a cold storage.** Potatoes should go in a dark area and allowed to cool down gradually and heal or cure up a bit. The best temperatures for this to happen is 60 -65 degrees F for about 5 – 20 days at a high humidity with good air circulation. Cooling them down rapidly could result in condensation developing and encourage bacterial breakdowns.

Lastly and most importantly - Do not wash potatoes that are warm or ahead of when you will be marketing them – dig, cool and wash them as you need them. **Do not put warm potatoes into wash water that is more than 10 degrees colder as this will increase bacterial breakdown** (For that matter, you should follow this rule for all produce that is washed!). And after washing let them dry completely before putting them in bags.

Table 1: Labeled Potato Vine Killing Compounds for NYS									
Product	Rate Per Acre	PHI (Days)	REI (Hour s)	Notes					
<u>Aim EC</u>	3.2—5.8 ounces if used alone 2-5.8 if com- bined with an- other desiccant	7	12	Used for pre-harvest desiccation of potatoes. Apply in later stages of senescence. Will also desiccate late season susceptible broadleaf weeds. Adequate desiccation is achieved within 14 days after initial treatment. Two applications may be required if crop is in active vegetative growth when desiccation is initiated. Apply in a mini- mum of 20 gallons per acre and use a non-ionic surfactant (NIS), methylated seed oil (MSO) or crop oil concentrate (COC). Don not use more than 11.6 fluid ounces per acre per crop season					
Reglone 2L	1 –2 pints per acre	7	24	Used for pre-harvest desiccation of potatoes. May make a second application, 5 days after the first if vine growth is particularly dense. Do not exceed a total of 4 pt/A. Drought at the time of application will decrease desiccation effectiveness. Apply in a minimum of 20 gallons of water per acre and use a non-ionic surfactant at 0.06- 0.5% v/v (1/2-4 pt per 100 gal) of the finished spray volume.					
<u>Rely</u> 280	21 ounces per acre	9	12	Not for use in Nassau and Suffolk Counties. Do not split application nor apply more than one application. Do not apply to potatoes grown for seed. Canola, corn, cot- ton, rice, soybean, and sugar beets may be planted at any time after the application. Do not plant treated areas to wheat, barley, buckwheat, millet, oats, rye, sorghum, and triticale until 30 or more days after an application as a potato vine desiccant. Do not plant treated areas to crops other than those listed in this use precautions section until 120 or more days after application.					
VidaEC	5.5 fl oz if used alone 2.75-5.5 fl. oz. if combined with another desiccant	7	12	Make 1 to 2 applications with a minimum interval of 7 days. Do not exceed 2 applications or 11 fl. oz/A per crop season. Apply with either a non-ionic surfactant or crop oil concentrate in 20-50 gallons of water/acre. Use an approved buffering agent to obtain a pH of 5.0 or less if the water source has a pH greater than 7.5. See label for additional information.					

It's Time to Put Fall and Winter Cover Crop Plans into Action Ethan Grundberg, ENYCHP

It is always a challenge to make time for cover cropping this time of year. However, as fields of first and second cucumber and summer squash plantings are taken out of production along with early-midseason lettuces, there is an opportunity to take advantage of warm temperatures and long day lengths to establish robust fall and winter cover crops now. Before selecting a cover crop for your fields, think through the following three things:

 What is the desired outcome or "management goal" that you want to see from the crop? Common goals for late season cover crops are nutrient scavenging, weed control, erosion protection, increasing



Canadian Field Peas and Oats (120 lb/ac peas with 20 lb/ac oats): This mixture is typically sown no later than mid-September in the region. Though oats do not develop deep enough roots to help break up hardpans, the grass does provide a winter-killed protective mulch and well-enough established roots to help prevent erosion. The oats also act as a nurse crop for the slower-to -germinate field peas that use the grasses structure to climb. Peas are legumes and will contribute some nitrogen to the soil through biological fixation, but the N contribution per acre varies depending upon how well the crop establishes and is dependent upon the presence of *rhizobia* bacteria. If you have not done so in the past 5-

organic matter, and breaking up hardpans from tillage and compaction from equipment use in season.

- Does the cover crop that best achieves your management goal serve as a host for insect or disease pests that are problematic in those fields and will affect the crops planted there the following year? Pay particular attention to soil-borne pests like root-knot nematodes and insect pests like tarnished plant bug and thrips.
- 3. How early do you need to complete primary tillage in that field the following spring and what tillage equipment do you have to do it? Heavy residues from certain overwintering cover crops can delay planting in the spring until mid-June.

A few popular options for seeding now are:

Buckwheat (50 lb/ac drilled 70 lb/ac broadcast): Though typically sown earlier, late season buckwheat can still be effective at suppressing late germinating weeds. Even if sown in the first week of September and left to frost-kill in place, buckwheat can provide some erosion protection as well. Since the residue decomposes quickly and is easily incorporated, planting buckwheat now can be a good option for fields that will be planted early next spring.

10 years, consider purchasing a legume inoculum to mix with the field peas to increase the likelihood of nitrogen fixation. Though peas and oats leave some more residue than buckwheat, both winter kill and are easily incorporated for early spring field preparation.

Forage Radish (10 lb/ac drilled 15 lb/ac broadcast): Very similar to daikon radishes, forage or "tillage" radishes produce thick tap roots that can regularly reach lengths of 10-16 inches. The deep roots can help break up compacted soils and create deep channels to improve water percolation and deep root establishment of future cash crops. Since the crop is winter killed, residues are easily managed for early spring planting. Since forage radish is a brassica and can attract flea beetles, make sure not to use it as a fall cover in fields to be planted with spring cole crops.

Winter Rye (seeding rate depends on date, see http://covercrops.cals.cornell.edu/rye.php for precise information): Rye is the most desirable late season cover crop for erosion control and nutrient capture. Since it overwinters and continues to grow both above and below ground in the spring, the crop is also excellent at outcompeting early spring weeds. However, this vigorous growth combined with rye's high carbon to nitrogen ratio makes it a difficult cover to manage for early spring planting. Conventional growers can kill the rye cover crop

VOLUME 5, ISSUE 15

PAGE 7

with herbicide in the early spring, but residues still require about a month to decompose and often delay planting until early June. Organic growers have most success flail mowing the crop before it produces seed heads and often find repeated tillage passes are necessary to break up the heavy residues. does not be added and the straight stands of winter ry mix is best used in fields that will not be least early to mid-June. Be aware that h

Hairy Vetch and Rye (30 lb/ac vetch 70 lb/ac rye): Growers looking for an early season addition of nitrogen from a cover crop often mix hairy vetch with winter rye. The rye provides the same benefits discussed above while also acting as a nurse crop for the leguminous vetch. Most of the nitrogen fixation occurs in May, so it is best to wait to spray down or flail mow kill the crop until at least late May, or when flowers have set but seed pods have not formed. Like straight stands of winter rye, the vetch rye mix is best used in fields that will not be planted until at least early to mid-June. Be aware that hairy vetch is a host for root lesion nematodes and can also harbor white mold. The Cornell Cover Crops Guide for Vegetable Growers is a great resource for more information on cover crops suited to the region, including a "decision tool" to help select the right cover crop for your management goals and season: http://covercrops.cals.cornell.edu/

Upbeat News about Slugs! Crystal Stewart, ENYCHP

Exhausted and cranky from the summer slump? Here's some oddly upbeat news about slugs!

I was having one of those days that we all have in July (back when it was July, sigh) and then I heard a story on NPR about how a glue has been developed from slug slime which patches living tissue ten times better than the products and equipment available now. That's right, slugs can literally save your life! So there's that.

All of us have spent enough time picking slugs off of a variety of surfaces to know that they seem to be able to stick to literally anything. Plastic, glass, leaves, even moist skin. How do they do that? They secrete a positively charged protein molecule which creates an electrostatic bond, and which also has properties that chemically bond it to a variety of surfaces. Another protein keeps the mix very elastic, helping increase the durability of the sticky stuff.

Harvard bioengineers studied these slugly properties along with other organisms including shellfish and algae and developed an adhesive which can be applied directly to organs. In one trial, the substance effectively sealed a hole in a beating pig heart.

Nature being as amazing as she is, we know that often all we need to do is study her carefully and we'll find the answers to our problems ready and waiting. I wasn't expecting one of them to be slug slime, but maybe that's what makes it magical.



Arion subfuscus (Image: shutterstock)



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VEG NEWS

Sweet Corn Trap Counts 7/24 - 8/1

County	Corn Earworm	European Corn Borer-Z (Iowa)	European Corn Borer-E (New York)	Fall Armyworm	Western Bean Cutworm
Orange	5	0	6	16	16
S. Ulster	0	0	0	0	53
Columbia	4	0	6	3	58
Greene	2	0	1	0	22
Albany	0	0	0	0	23
Schoharie	0	0	0	3	13
Fulton	NA	0	7	0	0
Saratoga	0	0	0	3	13
S. Washing- ton	0	0	0	0	23
N. Rensselaer	0	0	0	0	27
S. Clinton	0	0	1	0	8
C. Clinton	0	0	0	0	45

UPCOMING ENYCHP EVENTS

Berry Crops Field Workshop Tuesday, August 29th, 2017

5:00 –7:00pm at The Berry Patch 15589 NY-22, Stephentown, NY 12168

This workshop will cover the following topics:

- Plasticulture strawberry production for June berries and Day Neutral
- Low tunnels on strawberries
- High tunnel raspberry production
- Exclusion netting to control SWD in blueberries
- Using computer models to improve pest management of berry crops
- Collaboration between NEWA and NYS Mesonet

There will be plenty of time for questions and discussion Please register by calling Abby at 518-746-2553 or registering the ENYCHP website, http://enych.cce.cornell.edu/ – there is no fee, but it will help us provide the appropriate number of handouts etc. This event will happen rain or shine.

If you have questions, please contact Laura McDermott: 518-791-5038 or lgm4@cornell.edu.

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