This Week Around the Farm
Chuck Born—ENYCHP

Sweet corn: It appears that the first flight of European corn borers has come and gone, or has it? For those of you that have been growing sweet corn long enough, you know that in NY we are blessed with not just one strain of ECB, but two which we call ECB-E and ECB-Z. The ECB-Z is unique to NY and is important to keep an eye on because they emerge slightly later than ECB-E. So, the flight of ECB-E is over, but ECB-Z has just started! For those of you scouting corn, I’m finding lots of ECB larvae nestled in the whorl or in the emerging tassels. At this point, the best time for insecticides like the pyrethroids (Warrior etc.) is going to be when about 50% of the tassels have emerged and started to open, followed a couple days later when the rest of the tassels have emerged and opened. If you are using one of the more translaminar materials such as Coragen or Besiege (pre-mix of Coragen plus Warrior), one application may be enough as these materials have more residual activity. For organic growers, the best product is Entrust.

Cucurbits: Amazing what a couple of nice bright, sunny days can do to a vine crop! Summer squash harvest is moving into full swing and the only pests that I noted this week were a bunch of Striped cucumber beetles in the flowers. At this point when they are in the flowers, it gets tricky to try and control them as they are pretty protected in those flowers and more importantly, we need to be extremely mindful of our bee populations that are out there. If you begin to see noticeable damage on the fruit, then a foliar spray might be needed. Although none of the products are completely safe on bees, choosing something like Baythroid XL (also has a 0 days to harvest interval) and applying...continued on next page
at dusk or early evening would be an option. You could also choose something like Surround which is a kaolin clay that works as more of a deterrent to the beetles but isn’t an insecticide. However, it would need to be applied after each rain as it is not rainproof.

Now that we are harvesting summer squash and as temperatures warm up and things dry out (I hope), powdery mildew will begin to shortly rear its ugly head. Yellow squash seems to be a great indicator crops for powdery mildew. With this crazy spring season so far, if your planting schedule got goofed up and your later plantings are not quite where they need to be and you might need to be harvesting longer than usual on those early plantings, a fungicide program for that squash might be a good idea. Most of what we have labeled work better as preventatives so get them on at the first sign of PM, not when you can see it from the cab of the truck or tractor as your driving along the edge of the field. We will soon post the spray schedule for pumpkins and winter squash, but for now, because summer squash needs to be harvested daily, fungicides like Tornio, Vivando, Procure tank mixed with a protectant such as chlorothalonil containing product (see additional Worker Protection Safety information below in regards to chlorothalonil containing products) would be great choices because they have a 0 days to harvest and a 12 hour reentry interval so you can spray at the end of the harvest and be back in there the next day. Alternatively, if PM hasn’t started, you might be able to buy some time with some of the potassium bicarbonate materials such as Armicarb or Milstop (formulations differ in their days to harvest and re-entry intervals so please read the labels first before applying). Likewise, JMS Stylet Oil, Double Nickel 55 and Regalia could be used before PM gets started and all have 0 days to harvest with a 4-hour reentry interval.

Cole crops: I found a fair amount of Diamondback larvae and a few Imported Cabbage worms this week while scouting, so be sure to look back at last week’s information on how to identify them. Once you’ve identified them, it’s time to manage them! Remember that once they get somewhat inside the heads of cabbage or into Brussel sprouts, they become protected and harder to control, not to mention the damage done to the heads can result in unmarketable heads or allow secondary diseases like bacterial soft rots to get started. During warm weather when these critters are feeding aggressively, the Bts (Dipel, Xentari, etc.) are all very effective against Imported Cabbage Worm (ICW) and Diamondback moth (DBM) when their numbers are low. Other insecticides labeled include Avaunt, Radiant, Coragen, Voliam Xpress and Proclaim and would be better choices where DBM populations are high. Pyrethroids generally work better under cooler conditions and are generally effective for ICW, but are less effective on DBM. Insecticides that contain petroleum distillates should also be avoided within 7 days of applying Goaltender.

Special Eye Irritation Provisions for chlorothalonil containing products:

Chlorothalonil in this product is a severe eye irritant. Although the restricted-entry interval expires after 12 hours, for the next 6.5 days entry is permitted only when the following safety measures are provided:

1. At least one container designed specifically for flushing eyes must be available in operating condition at the WPS required decontamination site intended for workers entering the treated area.

2. Workers must be informed, in a manner they can understand:
   - that residues in the treated area may be highly irritating to their eyes
   - that they should take precautions, such as refraining from rubbing their eyes to keep the residues out of their eyes
   - that if they do get residues in their eyes, they should immediately flush their eyes using the eyeflush container that is located at the decontamination site or using other readily available clean water
   - how to operate the eyeflush container
Goaltender and Stinger for Post-Emergent Broadleaf Weeds in Cole Crops
Christy Hoepting, Cornell Vegetable Program

Goaltender 4F (a.i. oxyflufen):

*Crops:* Labeled only on broccoli, cabbage and cauliflower, direct-seeded or transplanted.

*Weeds controlled:* Provides excellent control of pigweed, good control of lambsquarters, purslane, Eastern black nightshade and Shepherd’s purse.

*Weeds it does not control well:* It is weak on ragweed, smartweed and mustards.

*Crop Stage:* Apply to a transplanted crop after a minimum of 2 weeks after planting, and to direct seeded crops with at least 4 true leaves.

*Rates:* 4 to 6 fl oz per acre per application. Up to 8 fl oz for a directed spray. A directed spray is applied in such a manner as to minimize contact with crop leaves.

*Maximum usage:* Do not apply more than 8 fl oz per acre per season. If a pre-transplant treatment has previously been made, the combination of pre-plant and post-transplant treatments must not exceed 16 fl oz per acre per season.

*Pre-harvest interval (PHI):* 35 days

*Notes:* Do not add any adjuvant, liquid fertilizer or pesticides to the spray mixture (see more information below). Avoid application if heavy rainfall is predicted to occur within 24 hours after planned application.

*Caution When Applying Goaltender in Cole Crops:* To avoid risk of crop injury, the Goaltender label for broccoli, cabbage and cauliflower states to not tank mix it with any adjuvant, liquid fertilizer or pesticides. Goaltender can cause leaf cupping, crinkling, stunting or necrotic lesions when applied during cool and cloudy weather. Injury is usually limited to treated leaves with new leaves emerging undamaged. Sometimes delay in maturity and yield reduction may result. A few years ago, significant crop injury resulted when an application of Goaltender 6 fl oz was applied by itself to broccoli one day after an application of Coragen + Nufilm-P (adjuvant) was made. Cornell studies in 2014 and 2015 showed that minor to moderate injury occurred when Goaltender was applied within 3 days of application of adjuvants with and without Coragen. When Goaltender was applied within 6 days of application of adjuvants with and without Coragen, significant injury did not occur (Fig. 1). Of the adjuvants tested, crop oil concentrate (COC) resulted in significantly the highest level of injury when preceded by application of Goaltender; LI700 (a non-ionic surfactant) also resulted in significant injury, while Nufilm-P was not significantly different from no adjuvant (Fig. 2). The addition of Coragen did not increase the level of injury beyond that of which the adjuvant caused alone. Plants grew out of any crop injury within 20 days and there was no effect on yield. Cabbage was much less affected than broccoli. As a consequence, it is recommended that application of Goaltender be separated by at least 7 days from any application that contains an adjuvant. To be extra cautious, applications with products that are EC formulations or that contain petroleum distillates should also be avoided within 7 days of applying Goaltender.

*Fig. 1.* Application of Goaltender 6 fl oz 3 days after application of adjuvants resulted in minor to moderate crop injury in broccoli (left side). Application of Goaltender 6 days after application of adjuvants was minor (right side). COC and LI700 (not shown) caused significantly more injury than Nufilm-P or no adjuvant (Bellinder and Hoepting, 2014).

Photos: C. Hoepting.
**Stinger 3EC** (a.i. clopyralid):

*Crops*: Broccoli, Brussels sprouts, cabbage, cauliflower, cavalo broccoli, Chinese broccoli (gai lon), Chinese cabbage (napa), Chinese mustard cabbage (gai choy), rapini, collards, kale, mizuna, mustard greens, kohlrabi (all crop group 5).

*Weeds controlled*: Provides excellent control of ragweed, galinsoga and thistles, and good control of nightshades.

*Crop Stage*: not specified

*Rates*: 4 to 8 fl oz per acre per application, up to a total of 12 fl oz per acre per season. Cornell studies have found that multiple applications of Stinger work better than a single high rate. For example, Stinger 8 fl oz followed by Stinger 4 fl oz 2 weeks later provided better control of Perennial sow thistle compared to Stinger 12 fl oz all at once.

*Pre-harvest interval (PHI)*: 30 days

*Notes*: Be aware of crop rotation restrictions: 10.5 months for onions and 18 months for peas and potatoes. See label for other non-vegetable crop rotation restrictions.

*General Comments*: Keep an eye out for leafhoppers as I saw a fair amount in eggplant this week. Especially scout beans and potatoes as those crops can really suffer badly from leafhopper damage. It’s been my experience to over the years that one application of an insecticide is usually not enough so scout as often as you can.

I would also keep an eye on crops as with all the rain so far this year, I have a feeling many of our crops will be shallowly rooted making them more vulnerable to drought stress. Many of you know my feelings on foliar feeding, but in this case with this year’s weather, a foliar feed might make sense and as one salesman explained to me, foliar feeding in his opinion can sustain the plant and keep it growing so that when the conditions do change and become more favorable for growth, these plants are able to take advantage quicker and not lose a beat.
Allium Leafminer Damage Update
Ethan Grundberg, ENYCHP

The allium leafminer (ALM) adults are not active at this point in the season and larval feeding has stopped as the pest enters its summer pupation period. However, the damage to allium crops from the period of spring feeding is being seen now, especially in affected onions and garlic. Recognizing the symptoms now is critical in order to avoid harvesting crops with significant internal damage for storage.

The most noticeable symptom visible now is severely twisted foliage, especially on onions (see image 1). Though leaves do not curl from ALM feeding on garlic, I have seen several garlic plants with contorted scapes resulting from ALM damage. These symptoms are relatively easy for organic growers to notice in the field; however, onion growers using post-emergent herbicides like Buctril and Chateau may have a hard time distinguishing twisting from ALM feeding from herbicide injury. The distinctive vertical lines of adult feeding and egg-laying that were visible in April and May (see image 2) are now difficult to see, so the only way to confirm the ALM larval feeding damage is the cause of foliar twisting is to carefully peel back the leaves looking for mining and/or pupae.

ALM larval mines are mostly vertical and often found on the third or fourth leaf from the outside. Pupae appear as small reddish-brown ovals and can be found most often in the lower stems of garlic and in the upper bulb of onions (see image 3). Not all plants with ALM larval mines contain pupae; it appears as if some of the maggots burrowed out of the stem or through the basal plate are, presumably, are pupating in the surrounding soil. Adult flies will emerge from these pupae sometime in mid-to-late September for the fall flight. However, insecticides should NOT be used now to ALM management; the pupae are NOT susceptible to sprays. If you find ALM pupae in crops, they should be either buried deeply or burned. The plants themselves can be salvaged, but are very susceptible to secondary pathogen infections like bacterial soft rot and will not store well.

We have some anecdotal and observational lessons from efforts to manage ALM this spring, but still no research-based recommendations for sprays. Conventional growers with infestations in garlic and onions grown for seed seemed to have success using Trigard (cyromazine, IRAC Group 17) at 2.66 oz/acre and Agri-Mek SC (abamectin, IRAC Group 6) at 2 oz/acre to control ALM. For smaller scale producers, using remay to cover host crops during the adult flights to prevent them from laying eggs will still be the best management tactic. Since there are fewer cultivated and wild alliums in the environment in the fall, ALM have caused more acute damage to leeks and late-season scallions in Pennsylvania and in Ulster County last year. Again, we confirmed adult feeding damage as far north as Claverack, NY (southern Columbia county) and extensively in Dutchess, Orange, and Ulster counties. Given the rate at which ALM has spread through the region since its original discovery in Lancaster county, PA in December 2015, fall allium growers in the counties already mentioned and the Capital District should be on the lookout for signs of damage beginning in mid-to-late September.
Everyone knows the balancing act that is garlic harvesting—too early and the cloves are small and don’t store well, too late and the head pops, making it unmarketable and more susceptible to diseases. So, as we near harvest, how should a grower decide if the garlic is ready? The best answer is to pull a few plants, cut through the head sideways (so you cut through all the cloves), and see how well developed the cloves are. You can use the leaves as a guide to decide when to do this (lowest third or half of the leaves yellowing and dying is a good mark to start with), but looking at the cloves is the best way to know if the garlic is ready. Cloves should fill the wrappers—if they seem a little loose, the garlic has a little ways to grow. A little of the very outer wrapper may have started to decay at this point. That is okay—it’s a normal part of the maturation process. The key is to harvest before the bulbs pop, which can happen relatively quickly, especially if we have another wet year. If you don’t think you will be able to get out and harvest for a period of time, it’s better to harvest bulbs a little too early than a little too late.

**Cutting the tops in the field:** If you find that you do not have space to bring whole plants into the drying area and maintain good air circulation, cutting the tops off the garlic is a good solution. Cutting the tops has the added benefit of leaving significant amounts of moisture in the fields rather than bringing all that lush, green growth into the drying area. Tops can be cut as close to ground level as you can get if using a sickle bar mower, or you can cut them by hand at 1.5” to 6” long. Our trials have shown that there is no increase in disease incidence even when cutting the garlic down to its final length as you bring it into the drying area.

**Field grading:** Hopefully you have been removing sick and damaged plants each time you weeded the garlic, so there won’t be many left. Harvest is one last chance to clean up your crop before you bring it into tight quarters where disease can spread like wildfire.

Remove any garlic that doesn’t look great and set it aside rather than bringing it in and finding it later. You might also consider selecting your seed garlic at the same time. Save out the best garlic as your own seed to maximize next year’s crop. You also don’t need to clean your own seed of dirt or remove roots, which will save you labor if you set it aside now.

**To wash or not to wash?** Generally, you want to clean your garlic in the most gentle way possible. Most of the time this can be done dry. You can gently rub most of the dirt off of the garlic while harvesting, then remove a little more as you transfer from the wagon to your drying area. The one exception to this rule might be if you have to harvest garlic from muddy soils. In that case, washing may be warranted, but do it right away while the dirt is still mud on the bulbs, not after it has dried on them. You want to avoid wetting and drying the garlic over and over. Regardless of method, do not bang heads to remove dirt, gently remove excess by hand. The more garlic is banged during the process, the more it will bruise and the worse it will store.

Move your garlic from the field into the drying area relatively quickly—most people harvest during the morning and have garlic in the barn, high-tunnel, or shed by mid-day. Garlic can be dried in a variety of ways, as long as a few fundamental ideas are followed. First, you want to have good airflow over the garlic to move moisture away. This means not having garlic packed too tightly into the drying area. Each layer of garlic should have good air movement, whether hanging in rafters or sitting on benches. If there are parts of the drying area that are stagnant and wet, you need to remove some top growth and throw it away, reduce density of plants in the area, or increase air movement. Next, you want to choose an area that gets hot, but not too hot. Garlic will dry well at 110 degrees, but we try not to go much above that because at 120 degrees waxy breakdown, a physiological disorder, starts to occur. This temperature can be reached in a barn, shed, or high tunnel. Make sure you have the temperature in your drying area well controlled, so that you do not overshoot that target.
Fungicides for Onion Foliar Diseases
Ethan Grundberg- ENYCHP

Botrytis leaf blight (BLB) has already been an issue in some fields of transplanted onions for a few weeks now, but stemphylium leaf blight (SLB), caused by the fungus *Stemphylium vesicarium*, is just now beginning to appear on the muck, especially on onions where herbicide applications have caused excessive leaf tissue injury. Christy Hoepting of the Cornell Vegetable Program has been conducting fungicide efficacy trials on the Elba Muck in Western New York for several years and has found that FRAC group 11 fungicides (Quadris, Cabrio) are no longer effective for SLB management. Fungicides with active ingredient in FRAC groups 3 and 7 seem to be the most effective. On the following page is a “cheat sheet” of fungicide efficacy on SLB, BLB, and purple blotch compiled by Christy last year. One additional note is that Fontelis (penthiopyrad, FRAC group 7) is not on the chart, but was found to provide good SLB control (second only to Luna Tranquility) in other research on the Elba muck.

It is also worth noting that most fungicides for SLB management require rotation to different FRAC groups after two sequential sprays. So, depending upon how severe BLB pressure is in fields, it can be tricky to follow labeled rotation restrictions while maintaining good protection for SLB, BLB, and purple blotch. The chart below is one example of a potential spray sequence that follows labeled rotation restrictions and also should provide good season-long SLB management. Downy mildew (DM) of onions is much less severe in Orange county compared to Elba, so it is not as important of a consideration when planning your fungicide rotations.

**SLB**

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<tr>
<th>Week 1</th>
<th>Inspire Super 20 fl oz</th>
<th>3</th>
<th>9</th>
<th>BLB*</th>
<th>DM**</th>
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<tr>
<td>Week 2</td>
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<td>DM**</td>
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*Add Rovral 1.5 pt for BLB

**Add Mancozeb or phosphorous acid for DM

BLB, DM: protection | Medicore | No control

SLB on onion with premature tip dieback
Botrytis continues to be on moderate to high levels (near or above 1.0 lesion per leaf) in most onions. To the right is the NEWA Onion Disease Forecast using the Montgomery, NY weather station for June 29th. You can access this information and all the other NEWA pest and disease forecasts at http://newa.cornell.edu/.

Sweet Corn Trap Catches 6/19-6/26

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<tr>
<th>County</th>
<th>Corn Ear-worm</th>
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UPCOMING EVENTS

High Tunnel Field Meeting

Join us for a discussion of ongoing high tunnel fertility management for summer tomato crops, high tunnel soil health, as well as other summer high tunnel crop options including cucumbers and basil.

In addition there will be an update on leek moth in allium crops, a discussion of downy mildew in basil, and a demonstration of an in-row flame weeder.

Speakers include:
Judson Reid, CVP
Andy Fellenz, NOFA-NY
Amy Ivy, ENYCHP

Light refreshments will be provided.
Pre-registration is encouraged.

Date: Wednesday July 12
Time: 5:00pm-7:00pm
Location: Slack Hollow Farm
177 Gilchrist Road
Argyle, NY
Cost: $15/ person
$25/ farm
(2 or more people)

Registration online at:
https://www.nofany.org/events-news/events/2017-on-farm-field-days

Or call NOFA at (585) 271-1979

Ag. Business Tuesdays: Are you a farmer in Eastern New York with a question about the management side of your farm business? The Cornell Cooperative Extension Eastern NY Commercial Hort Team, in collaboration with CCE County offices, is offering free farm business technical assistance appointments this summer on Tuesdays at various locations in our service region. Please Contact Liz Higgins to schedule an appointment, emh56@cornell.edu or 518-949-3772
Clinton County, July 11th: 9-5
Warren County, July 25th: 9-4

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