Cornell Cooperative Extension
Eastern NY Commercial Horticulture Program

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# Vegetable News

## Post-Emergent Sweet Corn Herbicides

***Charles Bornt, ENYCHP, Cornell Cooperative Extension***

With all the rain that we have had the last month, the most common phone call I am getting this week is what to use on sweet corn post-emergent for weeds that escaped the pre-emergent materials or for those plantings that did not get a pre-emergent! We have some options, but not a whole lot that is new.

The post-emergent materials to choose from can be found in Table 1 (pages 2-3), but there are a couple of other things you will need to know before making your selection. First, you need to know what weeds you are going after. Second, you will need to know the stage of your sweet corn in order to know if you can broadcast the materials or use drop tubes to keep the herbicides out of the whorl in order to reduce the chance of injury to the crop. As always, you need to really pay attention to the labels of these materials.

In order for these herbicides to perform their best and have the best crop safety, you need to know which adjuvants are required and how to use other additives such as a nitrogen. Read the labels to make sure that the chemicals and, almost as important, the additives are compatible. This is not only for crop safety, but efficacy of the materials used too. To assist you with that, see Table 2 to help determine which additives are recommended for the different herbicides, but this is no substitute for reading the product labels! Please also be very aware of the "Post Harvest Interval" or PHI for some of these materials, especially if you are using them on plastic or row cover corn as you may be cutting it close between applications and harvest!

Stinger is one material that is highly effective, but on a very narrow range of weeds. It is effective on ragweed, certain nightshades and Canada thistle. I have also seen it hurt wild buckwheat and Jerusalem artichoke, but not completely kill it. You are allowed two applications of Stinger per season not to exceed 2/3 of a pint total per acre per season. The recommended rate is 0.33—0.66 pints per acre. If you use the highest rate of 0.66 pints, you have used the maximum amount allowed for the season. See the label for more specific information on this material and if you are thinking of using any of these products with the ones mentioned earlier, please consult the labels to determine if they are compatible.

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**Going old school:** I don't see a lot of Basagran used much anymore but it may still be of use in some cases. Basagran with a crop oil concentrate plus atrazine could be another useful tool on certain weeds (see label for specifics). It is a contact herbicide, so complete coverage of susceptible weeds is key as is the weather – when I've seen this mix work best, it's on small weeds, actively growing a couple days after a rain when it's hot and humid! See the label for your formulation for more information.

**Notes about Atrazine:** Many of the products mentioned will benefit from the addition of 0.25—0.5 pounds of product with atrazine active ingredient. As atrazine has been one of the key materials used in our pre-emergent programs, it has been recommended that vegetable growers not use more than 1.5 lbs of active ingredient of atrazine per acre per season. This is so that other vegetables can be planted the following season without worrying about atrazine carryover and injury issues on those crops. Lumax, Lexar and Acuron have all become a popular pre-mix pre-emergent herbicide and each contain atrazine. At the recommended rate of 2.5 quarts per acre, there is 0.62 lbs. of actual atrazine (active ingredient) in those mixes, which means you can still use up to 0.5 lbs of atrazine in your post-emergent applications and be safe for next season's vegetables. For example, if you have in your shed AAtrex 4L (4 pounds atrazine per gallon) and you want to add 0.25 pounds as part of your post emergent mix, you would add 1/2 pint of AAtrex 4L. Also, the label states that atrazine should not be used on corn taller than 12" in height. For assistance with calculations of other formulations, contact Chuck Bornt at 518-859-6213.

Table 1:

| Product (active ingredient) | Pre-harvest interval | Weeds controlled | Rate | Comments |
|---|---|---|---|---|
| **Impact or**<br><br>**Armezon**<br><br>**(**topramezone) | 45 days | barn-yard grass, fall panicum, foxtails,crabgrass lambsquarter, ragweed and velvetleaf | 0.75 fluid ounces | Best control will also occur if broadleaf weeds are less than 4" tall and grass weeds are less than 3" tall.<br>It is also recommended that 0.25—0.5 lbs active ingredient of atrazine be added to improve weed control and residual.<br>Weeds need to be actively growing and coverage is essential.<br>In tall corn, I recommend drop nozzles be used in order to get the spray material down through the canopy and onto the weeds<br>**Adjuvants:** Methylated seed oil (MSO) or petroleum-based or vegetable seed-based oil concentrate (COC, HSOC) at 0.5 to 1.0 gallon per 100 gallons of water [0.5% to 1.0% volume/volume (v/v)].<br>**Nitrogen Fertilizer:** nitrogen-based fertilizers include urea ammonium nitrate (UAN; 28% or 34%) at 1.25 to 2.5 gallons per 100 gallons of water (1.25% to 2.5% v/v) or a spray grade ammonium sulfate (AMS) at a minimum rate of 8.5 to 17 pounds per 100 gallons of water. |
| **Armezon Pro**<br><br>**(**topramezone + dimethenamid-p) | 50 days | Broadleaves and several annual grasses (barnyard grass, crabgrass, Giant Foxtail, Wild Proso Millet) | For sweet corn and popcorn label recommends 20 fluid ounces per acre | Best control will also occur if broadleaf weeds are less than 4" tall and grass weeds are less than 3" tall and actively growing. **Applications can be made from corn emergence to 12-inches tall.**<br>**DO NOT apply within 50 days of harvesting sweet corn ears.**<br>**Adjuvants:** Armezon PRO Alone: Methylated seed oil (MSO) or petroleum-based or vegetable seed-based oil concentrate (COC, HSOC) at 0.5 to 1.0 gallon per 100 gallons of water [0.5% to 1.0% volume/volume (v/v)].<br>**Tank Mixtures with Armezon Pro**: Use nonionic surfactant (NIS) at 0.25 to 0.5 gallon per 100 gallons of water [0.25% to 0.5% volume/volume (v/v). Oil-type adjuvants (COC, HSOC, and MSO) may be used in tank mixtures with Armezon PRO, however, combinations with these adjuvants can cause elevated necrosis within a few days after treatment and occasionally crop height reduction**. Oil-type adjuvants are not recommended when tank mixing with atrazine.**<br>**Nitrogen Fertilizer:** nitrogen-based fertilizers include urea ammonium nitrate (UAN; 28% or 34%) at 1.25 to 2.5 gallons per 100 gallons of water (1.25% to 2.5% v/v) or a spray grade ammonium sulfate (AMS) at a minimum rate of 8.5 to 17 pounds per 100 gallons of water. |

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| | | | | |
|---|---|---|---|---|
| **Accent Q**<br><br>(nicosulfuron plus a safener) | | Mostly annual grasses | 0.9 ounces per acre | Accent Q will provide post emergent control of most annual grasses (limited crabgrass control) and if applied alone has very little broadleaf control (Redroot pigweed). If additional broadleaf control is also needed, consider tank mixing Accent Q with another herbicide listed in the label. Applications of ACCENT® Q may be applied broadcast or with drop nozzles (post-directed) on sweet corn up to 12 inches tall or up to and including 5 leaf-collars (V5).<br>**For sweet corn 12 - 18 inches tall, apply only with drop nozzles. Do not apply to sweet corn taller than 18 inches or those which exhibit 6 or more leaf-collars (V6).**<br>DO NOT APPLY ACCENT® Q to corn previously treated with "Counter" 15G or to corn treated with "Counter" 20CR in-furrow or over the row at cultivation. Applications of ACCENT® Q to corn previously treated with "Counter" 20 CR, "Lorsban", or "Thimet" may cause unacceptable crop injury, especially on soils of less than 4% organic matter.<br>**Adjuvants:** Crop oil concentrate (COC) or Non-Ionic Surfactant (NIS) plus a sprayable grade ammonium nitrogen such as UAN or AMS. See label for specific rates and uses. |
| Supplemental labeling for **Accent Q tank mixed with Impact and atrazine** – If using this combination, the user must have in their possession a copy of this supplemental label! Accent Q may be applied with 0.5 – 0.75 fluid ounces per acre of Impact plus 0.375 – 1.5 pounds per acre active ingredient atrazine (12 – 48 fluid ounces of a 4L formulated atrazine product). However, if you have used any atrazine containing pre-emergent products, the general rule of thumb for rotating vegetables the following year after using atrazine is no more than 1.5 pounds total active ingredient per acre. More than that and you greatly increase the potential for atrazine injury to susceptible crops. | | | | |
| **Permit**<br><br>(halosulfuron) | | Broadleaves (pigweed, velvetleaf, ragweed) and Yellow nutsedge | 0.67 ounces per acre | Apply Permit over the top or with drop nozzles from the spike through layby stage of the corn. Treat young actively growing broadleaf weeds 1 to 3 inches in height.<br>**Adjuvants:** Nonionic Surfactant (NIS) is required in the spray solution. Use NIS at 0.25 to 0.5% v/v concentration (1 to 2 quarts per 100 gallons of spray solution). Do not use COC or MSO as the potential for injury is too great.<br>**Nitrogen fertilizers:** May be added but are not necessary for post-emergent applications. Apply a high quality, granular spray grade ammonium sulfate at a rate of 2 to 4lb/A or a liquid nitrogen fertilizer solution (e.g. UAN 28%) at a rate of 2 to 4 quarts/A.<br>Use of soil or foliar applied systemic organophosphate insecticides on PERMIT treated crops may increase the potential for crop injury and/or the severity of the crop injury. |
| **Stinger**<br><br>(clopyralid) | 30 days | Broadleaves (ragweed, wild buckwheat, Common cocklebur, Jerusalem artichoke, Canada thistle) | 0.33 – 0.66 pints per acre | Apply Stinger any time after sweet corn emergence through 18-inch tall sweet corn uniformly with ground equipment as a broadcast or directed spray in 10 to 20 gallons total spray volume per acre.<br>Do not exceed 2/3 or 0.67 fluid ounces per year.<br>Do not apply to sweet corn that is greater than 18" tall.<br>Control of common cocklebur, common ragweed, giant ragweed, sunflower, other annual weeds and Jerusalem artichoke, apply 1/4 to 1/2 pint of Stinger per acre from weed emergence up to the 5-leaf stage of growth.<br>I would recommend using Stinger alone and not in tank mixtures at this time. |

**Table 2:** Comparison of adjuvants and other additives used in post-emergent sweet corn herbicides. This is not a substitute for reading the herbicide labels.

| Herbicide | Crop Oil Concentrate (COC) | Non Ionic Surfactant (NIS) | Methylated seed oil (MSO) | Nitrogen (UAN or AMS) |
|---|---|---|---|---|
| **Impact/Armezon** | **X** | | **X** | **X** |
| **Armezon Pro (used alone)** | **X** | | **X** | **X** |
| **Armezon Pro (in tank mixes)** | | **X** | | **X** |
| **Accent Q** | **X** | **X** | | **X** |
| **Permit** | | **X** | | **X** |
| **Callisto** | **X** | **X** | | |
| **Stinger** | | | | |

## Spinach Leaf Miner on Beets and Chard

***Crystal Stewart and Amy Ivy (Retired), ENYCHP, Cornell Cooperative Extension***

The last few years have brought particularly high spinach leaf miner pressure throughout Eastern NY on spinach, beets, and chard. Growers have reported having to abandon crops and spending significant amounts of time sorting out leaves ruined by these tiny maggots. The fly overwinters as pupae in the soil and hatches in late April and May in a typical year, and a little later this year. The adult fly then lays eggs on the leaves and the resulting larvae begin their damage. The oblong white eggs, less than 1 mm long, are laid in neat clusters on the underside of the leaves. They are easy to spot if you scout by looking under the leaves. The maggots may migrate from leaf to leaf down a row. They become fully grown in just a few weeks and drop into the soil to pupate. The entire life cycle is 30 -40 days. There are three to four generations per season. Typically mid-late May, late June and mid August are peak activity periods.

Organic growers may try to exclude these insects from crops, though the covers need to be applied prior to emergence to be effective and insects will quickly find their way to the crops even during harvest. In the case of an infestation, Entrust (spinosad) has been found to have some effectiveness because of its translaminar properties. Conventional growers can use Coragen (chlorantraniliprole) for crops nearing harvest (1 Day PHI), or Trigard (cyromazine) or Agri-Mek (abamectin) for crops that are still growing (7 day PHI)

If affected leaves are manually removed (a recommended though tedious task), make sure that they are destroyed through shredding, burning, or deep burial to ensure that larvae do not survive and emerge during the next flight (usually in late June to early July).

Some suggestions to prevent an infestation next year include rotating the location of these goosefoot family members to a new location and covering the planting with rowcover immediately after seeding/planting. Remember that this pest overwinters as pupae in the soil, so rotation away from that site will be key before putting rowcover over the new planting. Finally, be sure to control weeds from this same family such as Lambsquarter, which can be alternate hosts.

*Extensive damage to beet and Swiss chard foliage in late spring high tunnel crop. Photo: Amy Ivy*

*Spinach leaf miner larvae are visible in their tunnels on the left side of this beet leaf. On the right side is older damage that turns tan then brown after larvae drop to soil to pupate.. Photo: Amy Ivy*

*Spinach leaf miner eggs. Photo: UNH Extension*

## Bolting in Spring-Planted Vegetables

***Gordon Johnson, Extension Vegetable & Fruit Specialist; gcjohn@udel.edu***

Bolting is the term used for flower stalk formation in vegetables. Bolting response may be related to temperature, day length, or a combination.

Bolting in spinach, lettuce, and some radishes (oriental types) will occur naturally as days get longer. High temperatures will accelerate bolting in spinach and lettuce.

Many mustard family plants need a cold period along with lengthening days to flower. The amount of cold needed depends on the species and variety. Mustards are very prone to cold initiated spring bolting; turnips, Chinese cabbage, and salad radishes require more cold to initiate the bolting response.

In the cole crop group, cabbage planted very early in cold springs may bolt and premature flowering in broccoli, cauliflower, kale, and collards also occurs when planted too early, or if the spring is abnormally cold. However, cole crop transplants have to be of a certain age to be susceptible to this cold-initiated bolting.

Other biennial vegetables such as beets, carrots, and onions also can be induced to bolt but only once plants have reached a certain size (they are past the juvenile growth stage). This is uncommon in our region.

Controlling bolting starts with planting during the recommended planting window. Early planting will contribute to bolting in some crops (such as cabbage), late planting in others (such as lettuce).

Select varieties that are adapted to the spring planting season (an example would be Savannah mustard). Chose slow bolting varieties of spinach and lettuce. Choose spring adapted varieties of oriental radishes and Chinese cabbage.

One issue that complicates this is the use of high tunnels for early production. High tunnels allow for earlier planting but cold snaps still may drop temperatures enough to cause the cold induced flowering response in many of these crops.

*Photo: Natasha Field, CCE ENYCHP*

## Post-Harvest Washing of Vegetables

***Charles Bornt and Crystal Stewart, ENYHCP, Cornell Cooperative Extension, with assistance from Gretchan Wall, Produce Safety Alliance, Cornell University, edited by Elisabeth Hodgdon, CCE ENYCHP***

As vegetable harvests ramp up, there are a couple of things we would like to remind you about when handling fresh fruits and vegetables, especially when it comes to washing them. At a time when we continue to hear about foodborne illness outbreaks related to contaminated produce, it is even more important to think about how you handle your produce, not only to ensure that it is safe, but also that it retains its highest quality.

Keep in mind that washing produce and using wash water sanitizers are NOT REQUIRED by the Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR), a piece of federal food safety legislation that is now in effect. However, if you do wash your produce, as many growers do, sanitizers are recommended. Using sanitizers helps prevent the spread of pathogens through wash water if a source of contamination is present. It can also improve the shelf life of your product. Sanitizers are NOT meant to make contaminated produce safe, but merely prevent cross contamination. You must not harvest and sell produce that is contaminated with feces according to the PSR.

1.) If washing produce, make sure that only clean, potable water (that you would drink, with 0 colony forming units (CFU) of generic *E. coli* per 100 mL sample) is used. Washing fruits and vegetables in dirty water makes no sense and may result in the opposite of what we are striving for: safe, clean produce! A sanitizer should be added to all bulk water (potable) in tubs or tanks where multiple items of produce will be submerged, floated, or rinsed. If using single pass water (such as spraying from a hose that supplies potable water), using a sanitizer isn't as critical as if you are using water in bulk form (such as in a tub or tank). However, it is ideal to have sanitizer in single pass water to prevent the build-up of microorganisms in equipment or on spray tables.

2.) Be sure that your produce is not warmer than the wash water you are using—according to research, the temperature difference between produce and wash water should be no more than $10^{O}$F. Be sure to "pre-cool" the product before running it through your washer. Susceptible fruit, such as tomatoes, melons, or apples, that are warmer than the wash water can cause the wash water to actually get "sucked" into the fruit through the stem scars or wounds on the fruit. <u>This only applies if the fruit is submerged or floated and is not likely to occur with single pass spray.</u> If you can't pre-cool your product, you might need to warm your wash water to achieve the same goal.

3.) If possible, have your harvesters try to remove as much of the soil as possible before placing it into the harvest tote. This will help reduce the amount of organic matter that can tie up and deactivate any kind chlorine or sanitizer treatment. Regardless of the type of wash system you are using, establishing schedules to change water on a regular basis is critical. Adding sanitizer to dirty water will render the product ineffective to do that job. Changing water could be done hourly, per batch, or for each commodity, depending on the harvest conditions (think: muddy versus dry). Establish schedules and standard operating procedures that work best for your farm.

4.) There are a number of different sanitizers that can be added to wash water, but you need to make sure that you follow EPA rule as not all products are labeled for this kind of use. A sanitizer is not intended to 'wash' the fruit, since once pathogens are on the surface, they are nearly impossible to remove. Instead, a sanitizer is added to prevent cross-contamination in the water and within equipment. In order to "legally" use any sanitizing agents, the crop name or labeled for direct use on fruits and vegetables MUST be on the label of a water sanitizer product because it is considered a "pesticide" by EPA FIFRA. And second, the sanitizer must be registered for use in the state! Going to the market and buying some types of household bleach may not be legal if it does not have this label! If a product does not have fresh fruit or vegetables on the label, it can be inappropriate to use. See "Additional Resources" for Cornell's Produce Safety Alliance website, which contains a handy Excel sheet with an updated list of sanitizers that are appropriate to use.

In most situations, 50 -100 parts per million (ppm) of chlorine is what folks are using. A Dosatron or similar injector can be used to inject the right rates of sanitizer into your water. Another way to add sanitizers to your handling system, such as if you use the same roughneck tubs to wash produce, is to mark with a sharpie the line for 10 gallons (or whatever volume of water you want to use) to fill to, then use a dedicated teaspoon or measuring cup with a line specific to the amount of sanitizer needed. Table 1 below will help you determine the amount of bleach or chlorine needed to achieve the proper dilution rates in your wash water. Also, if possible adjust your pH between 6.0 -7.0 for better chlorine efficacy. Organic growers, be sure to read your labels to determine correct formulations, as they vary widely.

5.) Make sure you have the appropriate tools to monitor your sanitizer levels. Using the 'glug-glug' method and walking away from the wash system without checking that the desired level of sanitizer is achieved in the wash water is not only a waste of your time, but also a waste of expensive sanitizer products. If using chlorine, you can check the parts per million by using paper chlorine strips (similar to those that you can find at pool stores). It is important to note that only strips that measure FREE chlorine and <u>NOT</u> TOTAL chlorine are used to measure levels. Free chlorine measures the level of sanitizer that is available to do its job, whereas total chlorine may include some of the sanitizer that has been bound by organic matter and not active. Make sure the strips can measure the level you want to

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achieve; there are strips for high doses (50-100+ ppm) or low doses (10 ppm or less). There are more sophisticated ways to monitor your sanitizer level, such as through the use of titration kits, automated systems, or ORP (oxidation-reduction potential) meters. These methods may be more of an investment in the short term, but long term, they are more accurate than using strips. Different sanitizers require different monitoring tools, so be sure to choose what is appropriate for your product and system. Monitoring should be done on an established schedule and readings should be recorded so that action can be taken if sanitizer levels in the water are too low (or too high!).

6.) You should also be rinsing and sanitizing your washer and tables often (at the end of each day, end of each batch of produce etc.). I know there are lots of nooks and crannies in those washers, but using a pressure washer or even high pressure nozzle will help remove a lot of the debris. If you can incorporate a sanitizing agent in that water, that will also help. This will help prevent the build-up of microorganisms and help reduce the likelihood that a biofilm may form. A biofilm is just what it sounds like – a film of bacteria, including potentially harmful pathogens that could establish themselves inside equipment. Biofilms are extremely hard to remove with sanitizers and other cleaning agents once they have formed.

7.) I know everyone uses something different for harvest totes—buckets, crates, baskets, etc. If they are made of solid materials like plastic, you should be rinsing and sanitizing them frequently as well. They can easily become dirty and pose another risk of contamination in the handling procedure. One other note if you are using wood in the packing area or for packing containers. Wood cannot be sanitized because it is a porous surface. However, this does not mean that you need to remove every wood surface on your farm because we know that just isn't practical. Do the best you can – clean wood surfaces like tables and crates on a frequent schedule using detergent and clean water. Let them dry out between uses and replace them when they are damaged. In the long run, investing in surfaces that are easy to clean AND sanitizer, such as plastic or stainless steel, is ideal.

Additional Resources:

Cornell Produce Safety Alliance General Resource Listing, with links to many food safety resources. Includes link to download an Excel tool for using sanitizers and link to video for instructions:

https://producesafetyalliance.cornell.edu/resources/general-resource-listing/

Introduction to Selecting an EPA-Labeled Sanitizer, by Donna Pahl Clements, Gretchen Wall, Don Stoeckel, Connie Fisk, Kristin Woods, and Betsy Binh, Cornell Produce Safety Alliance:

https://producesafetyalliance.cornell.edu/sites/producesafetyalliance.cornell.edu/files/shared/documents/Sanitizer-Factsheet.pdf

How to Wash Produce Using Peracetic Acid Solution, by Robert Hadad, Cornell Vegetable Program:

https://rvpadmin.cce.cornell.edu/uploads/doc_676.pdf

Allowed Detergents and Sanitizers for Food Contact Surfaces and Equipment in Organic Operations, USDA-AMS

https://www.ams.usda.gov/sites/default/files/media/8%20Cleaners%20and%20Sanitizers%20FINAL%20RGK%20V2.pdf

**Table 1: Amount of sodium hypochlorite to add to wash water for 50-150 PPM dilution**

| Target PPM | ml/L | tsp/ 5 gal | cup/ 50 gal |
|---|---|---|---|
| **Sodium Hypochlorite, 5.25%** | | | |
| 50 | 1.0 | 3 2/3 | 3/4 |
| 75 | 1.4 | 5 1/2 | 1 |
| 100 | 1.9 | 7 1/4 | 1 1/2 |
| 125 | 2.4 | 9 | 2 |
| 150 | 2.9 | 11 | 2 1/4 |
| **Sodium Hypochlorite, 12.75%** | | | |
| 50 | 0.4 | 1 1/2 | 1/3 |
| 75 | 0.6 | 2 1/4 | 1/2 |
| 100 | 0.8 | 3 | 3/5 |
| 125 | 1.0 | 3 3/4 | 4/5 |
| 150 | 1.2 | 4 1/2 | 1 |

## Pest Alert—1st SWD of 2019 Found in Eastern NY

***Laura McDermott, ENYHCP, Cornell Cooperative Extension***

*Figure 1: Male SWD. Note the characteristic spot on the leading edge of each wing. Females have no spots on their wings. Photo credit: Elvira de Lange, Rutgers Univ.*

On Monday, June 3rd one male Spotted Wing Drosophila (SWD; Fig. 1) was found in Albany County in a trap located on the outside of a summer raspberry planting. The raspberries were not yet flowering. One individual female was found in Schuyler County during the week of May 27th and several others were reported in sweet cherry orchards along Lake Ontario. This is the earliest catch in NY since the arrival of SWD in 2011. It is very likely that wet cool conditions last fall and this spring combined with relatively mild winter temperatures resulting in the early appearance of SWD this season.

These small numbers should not cause too much alarm, but as weather conditions improve, and fruit starts to ripen, numbers will increase and we could have real pressure on all of our summer bearing small fruit – including June bearing strawberries. June strawberries have largely escaped damage in the past because the fly hadn't arrived until the harvest was complete.

For information regarding chemical management – both organic and conventional materials, check out the Labelled Insecticide Quick Guides posted on our website. There are different pages for blueberries, brambles and strawberries.

If you would like to receive text alerts for SWD and other serious threats to fruit and vegetable crops, enroll with ENYCHP by visiting: https://enych.cce.cornell.edu/enrollment.php.

For statewide information sign up for the Cornell SWD blog: http://blogs.cornell.edu/swd1/.

## Onion Thrips Management Recommendations for 2019

***Ethan Grundberg, ENYHCP, Cornell Cooperative Extension***

The mild spring and regular rainfall throughout most of the region have kept onion thrips pressure low so far in most allium crops. However, most growers know that onion thrips populations can grow quickly with warm dry weather, especially if rye hay (which can serve as an early breeding ground for thrips) is cut nearby forcing adults to migrate into allium fields. Onion thrips feeding on allium foliage not only reduces the photosynthetic potential of allium plants, but also opens physical wounds on the leaves where fungal diseases like botrytis leaf blight and Stemphylium leaf blight can more easily colonize tissue.

Cornell entomologist Dr. Brian Nault has updated his recommendations for onion thrips management in 2019 (Fig. 1). The most significant changes reflect the following:

1. Updated action thresholds: We recommended using chemical controls for onion thrips once an action threshold of one thrips per leaf was reached regardless of chemistry in the past. Now, Dr. Nault has provided different action thresholds depending upon the efficacy of the chemistry being used. For example, a grower intending to use Radiant SC (IRAC group 5, spinetoram) can use an action threshold of 3 thrips per leaf compared to 0.8 thrips per leaf for Agri-Mek (IRAC group 6, abamectin) given the more effective knock down action of Radiant. See the chart below for more details.

2. Clarification of the role of Movento: Dr. Nault has recommended that growers use Movento (IRAC group 23, spirotetramat) as the first insecticide in sequence for onion thrips management for many years. However, further research has demonstrated that Movento is most effective when applied before onions begin to bulb. For most long-day onions grown in New York, bulb initiation begins after the summer solstice on June 21st. Some early varieties, like Highlander, may begin bulb swell even prior to the solstice. If you opt to delay insecticide applications for thrips until after bulb initiation, it is more efficacious to skip Movento in sequence.

3. Integration of Minecto Pro: In 2017, the pre-mix product Minecto Pro (IRAC groups 6 and 28, abamectin and cyantraniliprole) was registered for use in New York. Minectro Pro is a mix of the active ingredients in Agri-Mek and Exirel, so extra attention must be paid at how to integrate these chemistries into a program without violating labeled resistance management mode of action rotation requirements. Several options on how to incorporate Minecto Pro into an onion thrips management program are outlined in the chart below.

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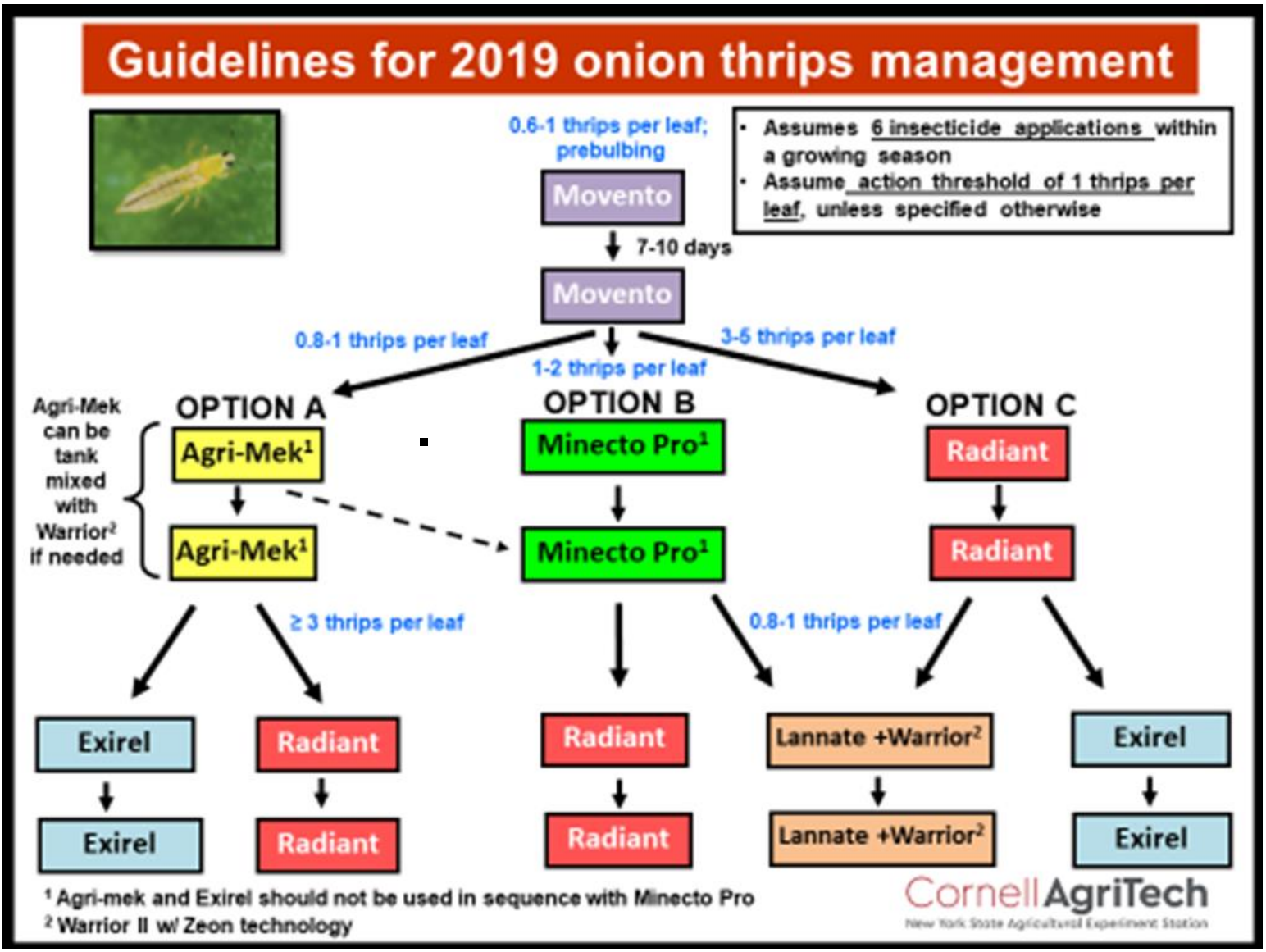
Onion thrips produce multiple generations each year. They also develop resistance to insecticides more readily than other pests that reproduce more slowly. One of the goals of the recommended insecticide sequence is to avoid exposing multiple generations per year to the same insecticide. By avoiding the exposure of multiple thrips generations to the same active ingredients in the same year, growers can help preserve the useful life of insecticides that are effective at managing thrips. If you have any questions regarding your thrips management strategy this year, please reach out by email at eg572@cornell.edu.

*Figure 1: Guidelines for 2019 onion thrips management using action thresholds to inform insecticide application.*



## Are You Getting Hemp Information?

***Maire Ullrich, ENYCHP, Cornell Cooperative Extension***

Are you new to or considering hemp production? There are several sources of information you can tap into to do your research:

- Beginning Growers Guide: https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/36391/beginning_hemp.pdf?1551806063
- Cornell hemp website: https://hemp.cals.cornell.edu/
- 2019 CCE Orange Updates (plenty of info for all of NY but some specific to lower Hudson Valley): https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/38326/hemp_update_5-31.pdf?1559576279
- NY Hemp Exchange List: https://s3.amazonaws.com/assets.cce.cornell.edu/attachments/37547/hempadupdate4-24.pdf?1556201539
- NY Hemp Exchange (if you want to list something to buy/sell): https://cornell.qualtrics.com/jfe/form/SV_e35Eb3pNfpWkqhv

*Photos courtesy of RJ Anderson, Cornell University*

## Corn Trap Counts

| Location | CEW | ECB-Z | ECB-E | FAW | WBC |
|---|---|---|---|---|---|
| Albany | x | 0 | 0 | 0 | 0 |
| Columbia | x | 0 | 0 | 0 | 0 |
| Rensselaer | 0 | 0 | 0 | 0 | 0 |
| Ulster 2 | 1 | 14 | 62 | 0 | 0 |
| Ulster 1 | 0 | 0 | 1 | 0 | 0 |
| Orange | 0 | 0 | 0 | 0 | 0 |
| Clinton 1 | 0 | 0 | 0 | 0 | 0 |
| Clinton 2 | 0 | 0 | 0 | 0 | 0 |

Cornell Cooperative Extension

Eastern NY Commercial Horticulture Program

# PESTICIDE CERTIFICATION EXAM SUMMER TRAININGS

**July 2, July 9, July 16, July 23**

**1:30pm—4:30pm**

**CCE Clinton County**
**6064 Route 22, Suite 5**
**Plattsburgh, NY 12901**

**ENYCHP Enrolled Members: $50**
**Non-Enrolled: $60**

To register for these trainings, visit:
**http://bit.ly/PesticideExamIntensive**

CCE ENYCHP Horticulture Specialists Mike Basedow and Elisabeth Hodgdon will be offering four afternoons of training to review key concepts and study tips in preparation for the exam.

The pesticide exam will be offered by a DEC representative in Plattsburgh on July 30th at the MHAB conference space, located at 14 Dormitory Drive in Plattsburgh, NY. Attendees wishing to sit for the exam will need to enroll for the exam separately. Attendees should also plan to spend some time outside of class reviewing their manuals and completing review questions.

*For more information, contact Mike Basedow at mrb254@cornell.edu or Elisabeth Hodgdon at eh528@cornell.edu.*

## A New Approach to Newsletters for 2019

***Ethan Grundberg, ENYCHP, Cornell Cooperative Extension***


We have received feedback from growers over the years that there is great content in our weekly vegetable newsletters, but that there isn't always time in the growing season to keep up with reading them. In response, we are trying something new this year: we will still send out a written newsletter every other week. On the weeks when we do not produce a written newsletter, all of the vegetable specialists will contribute to an audio newsletter or "podcast" that will be made available through a number of sources. If you have a smartphone, you can download apps like Apple Podcasts, SoundCloud, or Apple iTunes where you can subscribe to the Eastern New York Veg News. You can also always listen to episodes that we have released right on our website at https://enych.cce.cornell.edu/ or on our SoundCloud page at https://soundcloud.com/easternnewyorkvegnews. Finally, we will send everyone on our vegetable newsletter list an email with both sweet corn pest trap catch numbers and a link to that week's podcast.

## Want to Schedule an On-Farm Readiness Review (OFRR) this season?

***Elisabeth Hodgdon, ENYCHP, Cornell Cooperative Extension***

On-Farm Readiness Reviews are voluntary educational farm visits to help growers prepare for compliance with the Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR). One representative from the New York State Department of Agriculture and Markets, along with a Cornell Cooperative Extension member, will tour the farm, observe produce handling activities, and have a conversation with the grower about food safety and whether the farm is meeting PSR requirements. All notes taken during the visit will stay on the farm. Volunteering for an OFRR is an excellent way to prepare for future inspections. If you'd like to schedule an OFRR, contact Steve Schirmer at (315) 487-0852 or steve.schirmer@agriculture.ny.gov

# Upcoming Events

**FSMA/PSA Grower Food Safety Training Course**
**July 15, 2019 - 8:00am-5:30pm**
**CCE Warren County, 377 Schroon River Rd, Warrensburg, NY**

A grower training course developed by the Produce Safety Alliance (PSA) that meets the regulatory requirements of the Food Safety Modernization Act (FSMA) Produce Safety Rule. At least one person per farm producing more than $25,000 worth of fruits and vegetables must attend this course once. Participants will receive a certificate of course completion by the Association of Food and Drug Officials. To register, visit: bit.ly/JulyFSMA

**Summer 2019, 20-minute Ag Manager Lunchtime Webinar Series**
**Focused Business Topics for Busy Managers**
12:30pm—1:00pm on alternating Tuesdays, June through August

June 18—Making Capital Investment Decisions
July 2—Understanding Financial Statements 1 (Balance Sheets)
July 16—Understanding Financial Statements 2 (Income Statement)
July 30—Understanding Financial Statements 3 (Budgets and Analysis)
August 13—Ag Tax Topics - the Schedule F
August 27—Ag Tax Topics - Sales Tax and Property Tax Issues for Ag in NYS

To register, visit: bit.ly/AgManagerWebSeries

## Vegetable Specialists

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