Learn how to calculate the 'mulched acre' fertilizer rate for crops growing in plastic mulched beds to save $$ and reduce environmental risk.

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Scout for European corn borer larvae in the emerging tassel of sweet corn. It's best to apply insecticides when the tassel is beginning to emerge.

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What are biopesticides? How do they work? Will they work? Learn more about biopesticides and best use practices.

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Here's a flowchart that provides several different insecticide sequence options for controlling onion thrips in onions in 2018.

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VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

Volume 14 | Issue 10 | June 13, 2018

Cornell Cooperative Extension
Cornell Vegetable Program

Photo: Christy Hoepting

Fertilizing Mulched Acres

Judson Reid, CCE Cornell Vegetable Program

As growers lay plastic mulch across the region, they gain benefits such as season extension, improved fruit quality, moisture and weed control. Another benefit is the opportunity to reduce fertilizer applications, saving input costs and reducing environmental risk. Since the crop and most root growth is confined to the irrigated, mulched bed, we can reduce our field acre fertilizer rates to a 'mulched acre' rate.

From Cornell Guidelines: "to calculate fertilizer rates for trickle irrigation under mulch, base the amount applied on mulched acres rather than actual acres. For example, if the soil surface covered by the mulch is three feet wide and the row center is six feet wide, you should apply 1/2 or 50 percent of the rate that would have been calculated for broadcasting on a per-field-acre basis." In other words, divide the plastic bed width by the exposed row middle. If the mulch is 4 ft wide with 6 foot row middles this would lead to 66% of the acre under plastic and a 1/3 reduction in total fertilizer applied.

Mulched beds of lettuce in Penn Yan, NY, 5/24/18.
Photo: J. Reid, CCE CVP

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VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension regional agriculture team, serving 13 counties in Western New York.

The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

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VegEdge is published 25 times per year, parallel to the production schedule of Western New York growers. Enrollees in the Cornell Vegetable Program receive a complimentary electronic subscription to the newsletter. Print copies are available for an additional fee. You must be enrolled in the Cornell Vegetable Program to subscribe to the newsletter. For information about enrolling in our program, visit cvp.cce.cornell.edu. Cornell Cooperative Extension staff, Cornell faculty, and other states' Extension personnel may request to receive a complimentary electronic subscription to VegEdge by emailing Angela Parr at aep63@cornell.edu. Total readership varies but averages 700 readers.

Help us serve you better by telling us what you think. Email us at *cce-cvp@cornell.edu* or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.

Contents

The next issue of VegEdge will be June 20, 2018.

An early season fresh market vegetable discussion of production issues and pest management presentations.

See page 10 for event details.

continued from cover – Fertilizing Mulched Acres

Now, how much do we apply and when? This will depend on soil test results and crop demand. Total crop demand will vary with variety and season. For peppers a general recommendation is 125 lbs of nitrogen per acre. If these are transplanted on May 25, 12 weeks of fertigation would take us to mid-August, at which point we'd like to reduce or cease fertilizer applications due to declining daylength, temperature, fruit load and growth. Adjusting total rate based on the mulched acre example above, we budget about 82 lbs of actual N. Divided over 12 weeks this takes us to a delivery of around 7 lbs N per mulched acre per week. Crop growth and weather may lead us to fine tune this on a weekly basis, and even divide the 7 lbs nitrogen into multiple applications per week. Depending entirely on fertigation through drip systems has risks too. If we experience overcast skies or saturated soils we may need to add nitrogen, but can't due to excess field moisture.

Once we begin looking at calcium, phosphorus, potassium and magnesium demands, the calculations become more complicated, depending on soil test, and preferred fertilizer source. For this reason many growers prefer to apply these materials pre-plant and focus on nitrogen in-season, or make as-needed adjustments to other nutrients. Conventional nitrogen is available in several forms and there are more and more soluble OMRI approved N sources for organic production. To take your mulched bed fertility to the next level, consider foliar nutrient sampling. We'll address this topic in another article.

WNY Sweet Corn Trap Network Report, 6/12/18

Marion Zuefle, NYS IPM Program; http://sweetcorn.nysipm.cornell.edu

Nineteen of 37 sites reported this week. European corn borer (ECB)-E was caught at seven sites and ECB-Z was caught at four sites. Corn earworm was caught at four sites with Eden high enough to be on a six day spray interval (see table). No fall armyworm (FAW) or Western bean cutworm (WBC) were caught this week.

Most sites are at or reaching peak flight for ECB (630 DD modified base 50) and ECB damage and larvae were seen this week in whorl stage corn. When scouting focus on the emerging tassel. Separate the leaves and look down into the tassel for any signs of feeding, frass or larvae (see photos). The threshold for ECB is 15% infested plants at tassel emergence.

Scouting tassel emergence in sweet corn.

ECB larva inside whorl next to tassel. Feeding damage and frass can be seen.

European corn borer (bivoltine) development estimated using a modified base 50F degree day calculation.

Development Stage	Accumulated Degree Days
First Generation	
First spring moths	374
First eggs	450
Peak spring moths	631
First generation treatment period	800-1000
Second Generation	
First summer moths	1400
First eggs	1450
First egg hatch	1550
Peak summer moths	1733
Second generation treatment period	1550-2100

from J.W. Apple, Department of Entomology, Univ. of Wisconsin-Madison

Larvae feeding in the whorl are protected from insecticide applications and mortality will not be as high as at tassel emergence, when larvae feeding in the emerging tassel are exposed to the spray. Larvae will leave the tassel as it opens up and no longer provides a moist, protected feeding environment, and move down the plant looking for protected places to feed. Insecticide applications need to be timed to kill larvae before they bore into a new feeding location where again they will be protected from sprays (see photos below for tassel stages). In fields with very uneven development, two applications may be necessary, one when approximately 25-50% of the tassels have emerged, and again after 75-100% of the tassels have emerged, if the field is still over threshold.

Too early. Tassel still in whorl. ECB larvae will be protected from sprays.

Ideal time to spray. Tassel beginning to emerge so sprays will reach larvae.

Too late. Tassel fully emerged. ECB larvae have left tassel seeking shelter.

WNY Pheromone Trap Catches: June 12, 2018

Location	ECB-E	ECB-Z	CEW	FAW	WBC	DD to Date
Baldwinsville (Onondaga)	NA	NA	NA	NA	NA	716
Batavia (Genesee)	0	0	0	0	0	698
Bellona (Yates)	NA	NA	NA	NA	NA	715
Eden (Erie)	0	0	3	0	0	718
Farmington (Ontario)	2	0	0	0	0	689
Geneva (Ontario)	1	1	1	0	0	698
Hamlin (Monroe)	NA	NA	NA	NA	NA	628
Kennedy (Chautauqua)	NA	NA	NA	NA	NA	642
Pavilion	NA	NA	NA	NA	NA	575
Penn Yan (Yates)	0	0	1	0	0	722
Ransomville (Niagara)	0	0	0	0	0	690
Seneca Castle (Ontario)	1	0	0	0	0	676
Williamson (Wayne)	0	0	0	0	0	624

ECB - European Corn Borer
CEW - Corn Earworm
FAW - Fall Armyworm
WBC - Western Bean Cutworm
NA - not available
DD - Degree Day (mod. base 50F) accumulation

Best Practices to be Successful with Biopesticides on Your Farm

Darcy Telenko, CCE Cornell Vegetable Program

What are they? Biopesticides are defined by the EPA to "... include naturally occurring substances that control pests (biochemical pesticides), microorganism that control pests (microbial pesticides), and pesticidal substances produced by plants containing added genetic material (plant-incorporated protectants) or PIPs."

- **Biochemical Pesticides:** naturally occurring substances that control pests by non-toxic mechanisms such as plant extracts such as Neem oil, citrus oil, seaweed/kelp extracts, giant knotweed; hydrogen peroxide**,** salts of phosphorus acid**,** insect sex pheromones
- **Microbial Pesticides:** consist of a microorganism (bacterium, fungus, virus or protozoan) as active ingredient such as *Bacillus spp. (Bt producing strains of B.thuringensis), Pseudomonas spp., Streptomyces spp., Trichoderma spp., Coniothyrium minitans* (Contans WG), and *bacteriophages*
- **Plant-Incorporated Protectants** (PIPs): Pesticidal substances that plant produce from genetic material that has been added to the plant. Like the BT gene from *Bacillius thuringensis*, BT Cotton/BT Corn

Why use them? Biopesticides are generally less toxic than conventional pesticides, affect only the target pest and closely related organisms, effective in 'relatively' small quantities with little residual, and generally have a short or no REI or PHI.

How do they work?

- **Antibiosis** –microbial pesticides, where growth of one organism is detrimental to another through the production of antibiotics and other growth inhibitors. Examples include *Bacillus* spp., *Pseudomonas* spp., *Trichoderma* spp., *Gliocladium* spp., *Streptomyces* spp.
- **Parasitism/Predation** – the microorganisms feed on the pest or pathogen of interested. Examples include *Coniothryium minitans* (Contans WG) a parasite of *Sclerotinia spp.*, *Trichoderma* spp. parasite of numerous soilborne fungal pathogens, bacteriophages, viruses that infect and lyse bacteria, *Paecilomyces fumosoroseus* - parasitic to whiteflies, thrips, aphids and spidermites (greenhouse), and *Paecilomyces lilaciunus -p*arasitic to nematodes in field crops, vegetables, fruit and turf.
- **Competition** with pests for nutrients, colonization sites on leaf or root tissues and possibly disguise roots from pest that rely on specific root signals to initiate germination or to guide movement/growth towards the host crop.
- **Contact inhibition** by biochemical pesticides that inhibit germination or growth of pest, disrupt cells and can help dry out active lesions and prevent or slow secondary spread.
- **Induced resistance** – they turn on plant defenses to inhibit further infection by pathogens

A Few Examples: Actinovate® AG, Agree®WG, PFR-97ä, Sluggo®, Double Nickel®, Zonix®, Serenade®, Regalia®, Venerate®, RootShield®, T-22 HC, Serifel® to name just a sampling of a few examples that are available from a continually expanding market.

A few examples of products currently available.

Biological	Product(s)	Activity	Pathogens	Crops
Bacillus amyloliquefaciens	DoubleNickel	Competition	*Pythium, Rhizoctonia Fusarium, Macrophomina, Phytophthora Verticillium, Puccinia, Sclerotinia*	Corn (rust, SLB) Many vegetables, sweet corn, peanut (soilborne)
Bacillus amyloliquefaciens	Serifel	Competition	*Alternaria, Phytophthora infestans,* powdery mildews, *Botrytis*	Various vegetables, grapes, small fruit
Bacillus subtilis	Serenade Opti	Antiobiosis	*Sclerotinia sclerotiorum*	Soybean, vegetables
Streptomyces lydicus	Actinovate AG	Exclusion, anti-fungal, parasitism	*Fusarium, Pythium, Phytophthora, Macrophomina, Rhizoctonia*	Corn, soybean, small grains, vegetables
Coniothyrium minitans	Contans WG	Mycoparasitism	*Sclerotinia* spp.	Soybean, vegetables
Trichoderma spp.	RootShield	Competition	*Rhizoctonia, Pythium, Fusarium*	Cereal grains, soybean, vegetables
Ulocladium oudemansii	BotryStop	Competition	*Sclerotinia sclerotiorum*	Soybean

Will they work? Effectiveness of the products vary and are dependent on:

- Target pathogen – may only work well against some pathogens, but not others and products are not curative!!!
- Environment - Efficacy is limited, especially under conditions that are highly conducive to sever disease
- Crop/Cultivar there is some evidence that this may have an effect on efficacy but this has not been looked at in detail.
- Timing is extremely important. In general biopesticides are not curative, they need to be put out in preventative manner that integrates with other pest control strategies (cultural and chemical)
- May not be economical; depends on the specific operation

continued on next page

Best Use Practices:

1. Understand how the biopesticide was designed to work, so that you can best place it within your management system
2. Always read and follow label – crop, target pest, rate
3. Verify tank mix compatibility or if there are any other precautionary issues….i.e. you don't want to release a beneficial insect and they spray three days later with a broad spectrum insecticide – you would be just throwing away the money you spent
4. Wear proper Personal Protection Equipment – treat as you would any other pesticide
5. Follow directions on optimal application and storage conditions to maintain activity and viability

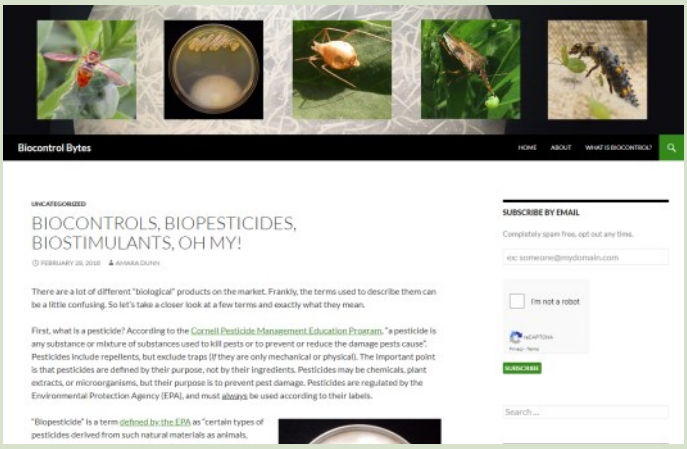
A number of biopesticides have been and are currently being evaluated by efficacy. Information can be found at:

- Reports from NYS IPM trials and organic guides are posted here: https://nysipm.cornell.edu/agriculture/vegetables/organic-resources-vegetables/
- Plant Disease Management Reports https://www.plantmanagementnetwork.org/pub/trial/pdmr/
- Ohio State Microbe-containing Products Advertised to Enhance Crop Growth http://u.osu.edu/vegprolab/microbe-containing-products/
- Arthropod Management Tests http://amt.oxfordjournals.org

Biocontrol Blog: Biocontrol Bytes

Amara Dunn, Biocontrol Specialist, NYS IPM Program

Would you like to learn more about biological control and how to use it successfully? New York State Integrated Pest Management biocontrol specialist Amara Dunn has a new blog - "Biocontrol Bytes" (https://blogs.cornell.edu/biocontrolbytes). Short articles are posted approximately once a month to share information, answer stakeholder questions, and connect readers to other relevant resources. Subscribe using the green button on the right side of the page in order to receive email updates when new articles are posted.



Late Blight Risk – Severity Values Accumulations

Darcy Telenko and John Gibbons, CCE Cornell Vegetable Program

Late blight severity values continue to rise for many locations. The threshold for risk is 18 SVs and within about a week of reaching 18 SVs growers need to apply fungicide on all potatoes 4+ inches tall, and on all field tomatoes, to protect them against late blight. Potatoes are actively growing around the region. Based on weather forecasts using first emergence of potatoes on May 15, six locations have exceeded the threshold, these include Albion, Buffalo, Gainesville, Penn Yan, Rochester, and Wellsville. The forecast projects that Versailles will reach 18 SVs by 6/18 (see table for other weather stations). Once you've applied your first fungicide, use Simcast or early blight P-Days to help schedule your fungicide applications for the remainder of the season.

There have been no new light blight reports nationally. The only positive sites remain in south in Florida. We will continue to watch the national occurrence map to track late blight movement.

Late Blight Severity Values* 6/12/2018

Location	Total	Forecast 6/13-6/15	Location	Total	Forecast 6/13-6/15
Albion	**39**	0	Knowlesville	0	0
Baldwinsville	9	0	Lodi	0	0
Bergen	1	0	Lyndonville	1	0
Buffalo	**19**	0	Medina	6	0
Burt	7	0	Niagara Falls	7	0
Butler	7	0	Penn Yan	**30**	0
Ceres	14	0	Rochester	**18**	0
Fairville	1	0	Sodus	4	0
Farmington	10	0	Versailles	17	0
Gainesville	**73**	2	Volney	4	0
Geneva	4	0	Wellsville	**54**	0
Kendall	4	0	Williamson	7	0

* Severity value accumulations start 5/15/2018

CROP INSIGHTS

LEAF MINERS have caused some early damage in Swiss chard and beets. Also seen some minor damage in mixed greens and spinach. Leaf miner start out as flies that lay eggs on the leaf. The larvae hatch and then burrow beneath the leaf surface feeding between the upper and lower surfaces.

Treatment is difficult. Once the larvae enter the leaf there is little to be done. Treating with a product like neem oil or kaolin clay to deter the adults from laying eggs. – *RH*

Leaf minor larvae and leaf minor damage on spinach. *Photo: UMASS Veg Ext. http://ag.umass.edu/vegetable/fact-sheets/leafminer-beet-spinach*

CUT WORM have been active in winter squash and pumpkin plantings. This is especially true where there is a lot of previous crop residue such as corn stubble. The pest doesn't persist for very long and it is probably cheaper to reseed the affected areas. For future plantings, either don't follow in fields where there is a lot of crop residue or deep till the residue way in advance. – *RH*

BLACK APHIDS are still around. We're finding them on peas, early beans, some greens, lambsquarters and pigweed. Cool damp nights favor the pest. The aphids tend to bunch together on stems, under leaves and on petioles. – *RH*

Black aphids gathering on fava beans. *Photo: R. Hadad, CCE CVP*

CUCURBITS

The current cucumber downy mildew risk remains in the South. It has been positively identified on cucumber in Florida, North Carolina, South Carolina, and Georgia. We will continue to monitor and update this weekly. You can monitor the progress of cucurbit downy mildew at http://cdm.ipmpipe.org/current-forecast. – *DT*

ONIONS

Now the crop is taking off with many direct seeded fields in the 4-leaf stage and earliest plantings of early varieties starting to bulb (Fig. 1). Lots of weed control activities this week including a multitude of herbicide applications and hand weeding. Overall, post-emergent herbicide applications have been working well. However, those applications made during last week's cooler and

Figure 1. Onion crop is taking off as we approach summer. Left: 4-leaf direct seeded onions reaching for the sky, and; Right: an early planting of an early variety of transplanted onions are beginning to bulb. *Photos: C. Hoepting, CCE CVP*

continued on next page

cloudier weather resulted in a bit more onion injury than normal (including in my trials). ome fields are taking a break to let onions recover after a couple of weeks of aggressive herbicide applications. **Much more on weed control at Elba's onion twilight meeting next Thursday, June 21st** (see page 9 for details). With exception of big transplanted onions (8-10 leaf), Botrytis leaf blight has not reached the spray threshold. Onion thrips were up slightly over the past week with some transplanted fields (upland and muck) approaching the spray threshold of 1.0 onion thrips per leaf (adults + nymphs). It is ideal to apply the first insecticide in sequence for OT control, which is Movento before onions start to bulb. Once bulbing occurs, Movento does not work as well. Therefore, **we recommend applying Movento when OT reach spray threshold or at first sign of bulb swelling (week before 1" bulbs), whichever comes first.** For more information on 2018 Cornell Onion Thrips Management plan, see article on page 8. The cheat sheet is also available on CVP website at https://rvpadmin.cce.cornell.edu/uploads/doc_685.pdf).

This is the time when onion smut starts to show up. Onion smut is a soilborne pathogen that only attacks direct seeded onions (transplants are immune) and usually only in the muck fields. Plants are susceptible from germination until the flag leaf is fully mature. Unfortunately, plants that are infected with smut pretty much die. At this time of year, onions have either recovered from burn off or are dead. So, if you see weak plants in your stands and they are not infested with onion maggot, they might have onion smut. Onion smut becomes more noticeable as infected seedlings become stunted and show outer leaf dieback compared to their healthy counterparts. Upon close inspection, a smut-infected plant has blackish longitudinal blisters along its outermost leaves (Fig. 2 & 3). Affected leaves may bend or twist abnormally and usually are shed prematurely. Blisters rupture to expose black, powdery spore masses. In addition to Pro Gro, mancozeb and thiram, there might be a new fungicide seed treatment available for the next growing season – much more on this later! – *CH*

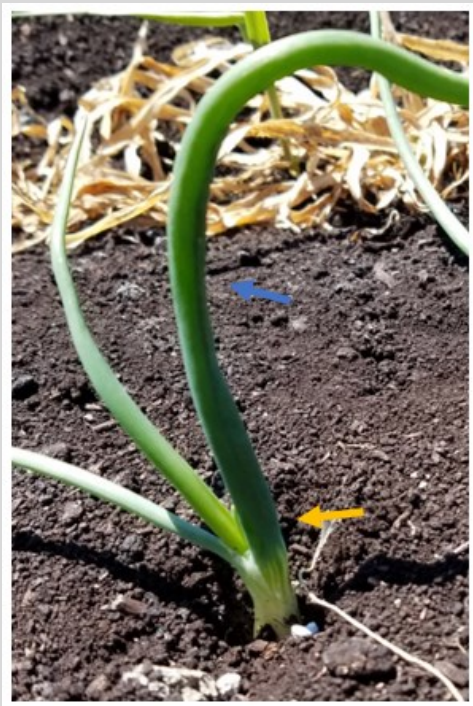


Figure 2. Early signs of onion smut. Look for swelling in the leaf above the basal plate (yellow arrow) and stretch of black fungal spores underneath the skin (blue arrow). *Photos: C. Hoepting, CCE CVP*

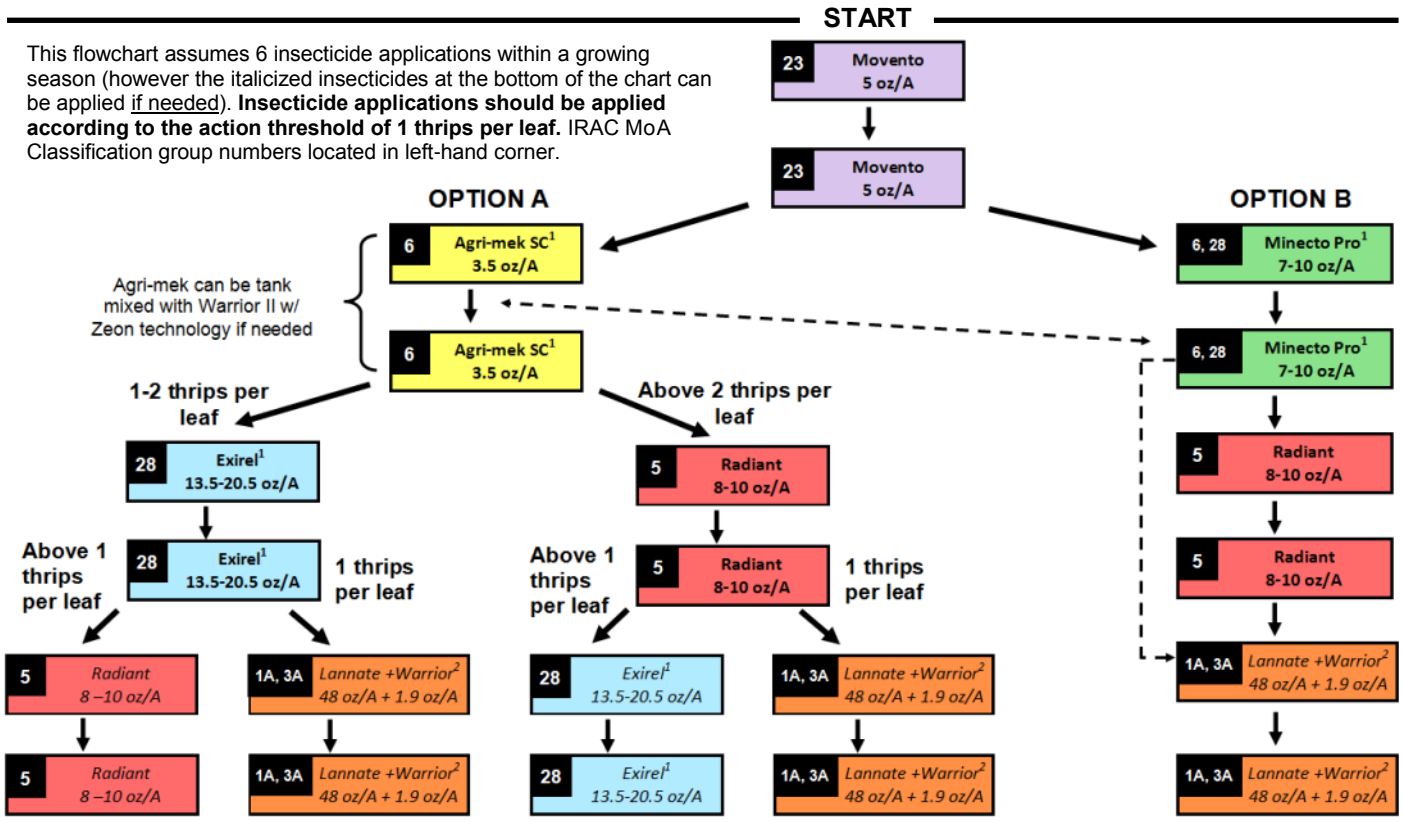
Figure 3. To check for onion smut, you can break in half the suspect leaf. If it has smut, the inside of the leaf will be black (left, yellow arrows) compared to a healthy leaf (middle). You can also pull out the plant and look for black blisters just under the skin in the bulb (right). *Photos: C. Hoepting, CCE CVP*

Insecticide Sequences to Manage Onion Thrips in Onion in 2018

Ashley Leach and Brian Nault, Dept of Entomology, Cornell; and Christy Hoepting, CCE Cornell Vegetable Program

Onion thrips (*Thrips tabaci*) are beginning to colonize onion fields in New York. Thankfully, New York has a variety of registered insecticide products that can successfully control onion thrips. The following flowchart provides several different insecticide sequence options for controlling onion thrips in 2018. This flowchart is also available online at cvp.cce.cornell.edu.

GUIDELINES FOR 2018 ONION THRIPS MANAGEMENT



1. Minecto Pro is a pre-mix of Agri-Mek and Exirel. Agri-mek and Exirel should not be used in sequence with Minecto Pro.
2. Do not include Warrior II w/ Zeon technology if previously tank mixed with Agri-mek

Use an action threshold

We recommend using an action threshold when following these insecticide sequences. Using an **action threshold of one thrips per leaf** has been very effective at controlling onion thrips infestations. In trials conducted in 2015 and 2016 in Elba, NY action threshold-based insecticide programs offered the same level of thrips control as a standard (weekly) insecticide program, and reduced onion thrips populations by 83% compared to untreated controls. While these insecticide programs offered similar levels of control, action threshold-based insecticide programs averaged 33-50% fewer insecticide applications as compared to a standard (weekly) insecticide program.

Start with Movento

We suggest beginning onion thrips management with two sequential applications of Movento® (spirotetramat) at 5 fl oz per acre. **Movento® is unparalleled early in the season at controlling thrips because it kills larvae and eggs and as a systemic insecticide can often offer weeks of control**. In some cases, one application of Movento® can provide 4 weeks of thrips control. Because Movento® is not nearly as effective on larger onion plants that are bulbing (e.g., 1-2-inch bulbs), make sure that Movento® is applied before onions are bulbing or when the thrips populations reached 0.6 thrips per leaf. After Movento® applications are made, follow either 'Option A' or 'Option B' for the remainder of the season (see flowchart).

Option A – Agri-Mek for Lower Onion Thrips Pressure

'Option A' describes more traditional insecticide sequences and includes products that have been available for the past few years and proven effective at controlling thrips. These sequences may be less expensive than 'Option B' and can be selected if onion thrips densities remain relatively low after two applications of Movento®. In 'Option A', we suggest making two sequential applications of Agri-mek® SC at 3.5 fl. oz per acre after applying Movento® (see flowchart) (See 'Other variations' on the next page). If Agri-mek® SC has underperformed on your farm in recent years, **we recommend tank mixing Warrior® II with Zeon technology with Agri-mek® SC.** After two applications of Agri-mek® SC with or without Warri-

continued on next page

or II with Zeon technology, either Radiant® SC or Exirel® should be applied depending on the onion thrips pressure. Exirel® at 13.5-20.5 fl oz per acre is recommended when onion thrips densities are 1-2 thrips per leaf. In insecticide efficacy trials conducted in 2016, two sequential applications of Exirel® controlled onion thrips densities of 4 thrips per leaf but was not successful at higher densities. Thus, we still recommend Radiant® at 8-10 fl oz per acre when onion thrips densities are greater than 2 per leaf. If additional insecticide applications are needed, a tank mix of Lannate LV (48 fl oz per acre) and Warrior® II with Zeon technology (1.9 fl oz per acre) can be co-applied to prolong thrips control until harvest. Do not include Warrior® II with Zeon technology in the tank mix with Lannate LV if Warrior® II with Zeon technology was previously used with Agri-mek.

Option B – Minecto Pro for Higher Onion Thrips Pressure

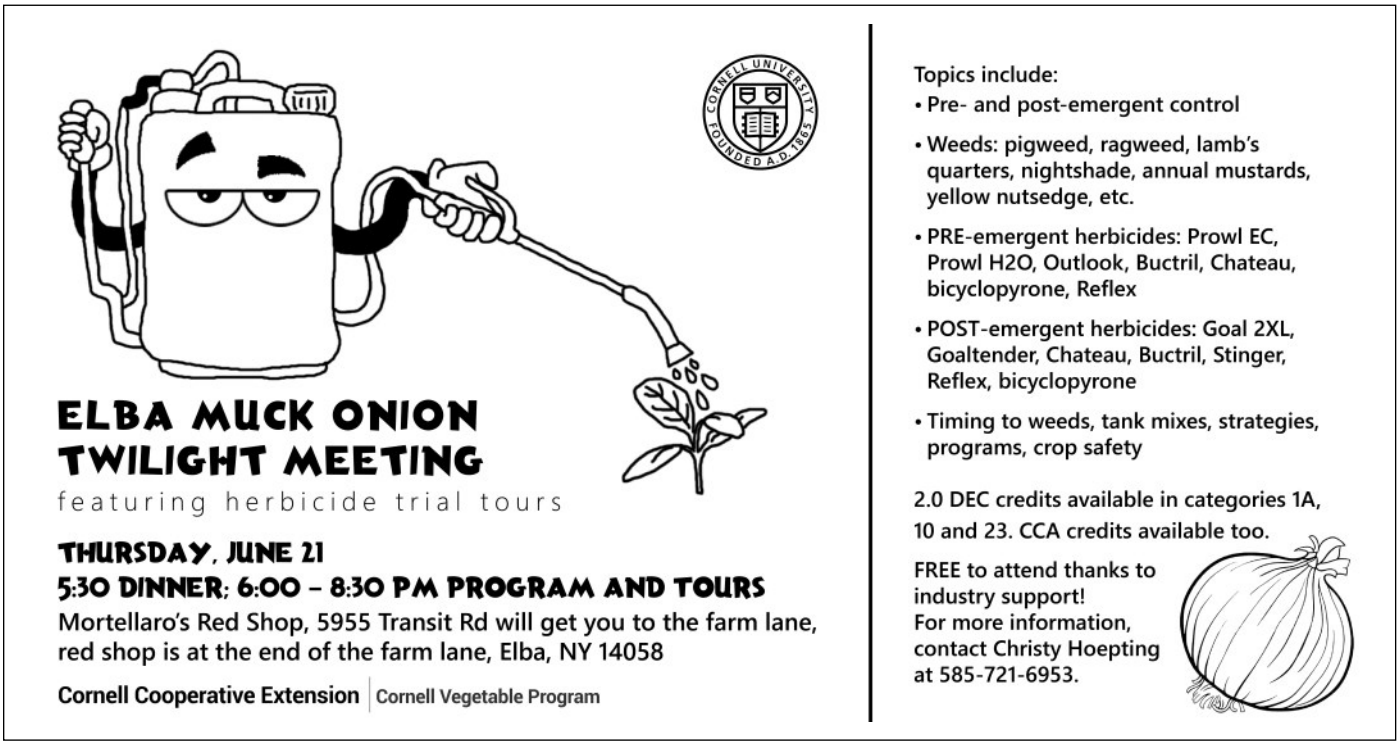
'Option B' is best suited for fields that face **high onion thrips pressure early in the season**. This option features Minecto® Pro, a pre-mix of Agri-mek® SC (abamectin) and Exirel® (cyantraniliprole). The cost of Minecto® Pro is higher than other insecticide options (i.e. Agri-mek), but Minecto® Pro can offer superior control of thrips. In a 2016 insecticide evaluation trial in Elba, NY, Minecto® Pro performed equivalently to Radiant® SC at 10 fl oz per acre (spinetoram) and reduced thrips by 80% when compared to the untreated control. Consider applying Minecto® Pro at 7-10 fl oz per acre if thrips populations increase quickly after Movento® applications have been made (see flowchart). **Minecto® Pro** should be applied early to mid-season because it **has a 30-day preharvest interval, just like Agri-Mek® SC**. Because Minecto® Pro contains abamectin and cyantraniliprole, caution should be taken to ensure that no more than 2 applications of an abamectin-based and cyantraniliprole-based product are made during the season (see below, 'No more than two applications of abamectin and cyantraniliprole per season'). Following the 'Option B' track, use either two applications of Radiant® or a tank mix of Lannate® LV (methomyl) and Warrior® II with Zeon technology (lambda-cyhalothrin), depending on the onion thrips pressure. If densities remain high (above 2 thrips per leaf) after applications of Minecto® Pro, Radiant® should be applied at 8-10 fl oz per acre. If densities are low (1-2 thrips per leaf), consider applying a tank mix of Lannate® LV and Warrior® II with Zeon technology (48 fl oz per acre and 1.9 fl oz per acre, respectively).

Other variations

These insecticide application guidelines provide examples with commonly used products, but other options to control thrips also exist. For example, if following 'Option A' and onion thrips densities increase after one application of Agri-mek®, consider moving to the 'Option B' track and make an application of Minecto® Pro to decrease onion thrips densities (flowchart, dotted line).

No more than two applications of abamectin and cyantraniliprole per season

Whether you follow 'Option A' or 'Option B' or end up jumping tracks, no more than two (sequential) applications of Agri-Mek® or Exirel® either alone or as part of Minecto® Pro, may be made per season.For example, if Agri-Mek® is followed by Minecto® Pro, neither a second application of Minecto® Pro nor a second application of Agri-Mek® should be used Instead, choose from either i) Exirel®, ii) Radiant®, or iii) Lannate® + Warrior® II with Zeon technology.



Upcoming Events

view all Cornell Vegetable Program upcoming events at CVP.CCE.CORNELL.EDU

2018 WNY Fresh Market Vegetable Twilight Meeting

June 19, 2018 | 5:00 PM - 7:55 PM; dinner served at 8:00 PM
W.D. Henry & Sons, 7189 Gowanda State Rd, Eden, NY 14057

An early season fresh market vegetable discussion of issues and to present information on pest management tools. 2.25 DEC pesticide certification credits (categories 1a, 10, and 23) and 1.0 (category 21) will be available for those that attend the entire meeting. Topics:

- FSMA Update for the 2018 Season – *Robert Hadad, Cornell Vegetable Program*
- Scouting for Sweet Corn Pests – *Marion Zuefle, NYS IPM Program*
- Weed Management in Vegetable Crops – *John Wallace, Cornell, and Bryan Brown, NYS IPM Program*
- Early Season Veg Pest Management Discussion and Crop Walk – *Darcy Telenko, Cornell Vegetable Program*
- Using the New BlightPro Disease Forecasting System for Late Blight in Tomatoes and Potatoes – *Ukko Agro co-founders*

Dinner will be served after the meeting at approximately 8:00 PM. Cost: FREE to growers due to the support of sponsors! Register online at https://cvp.cce.cornell.edu/event.php?id=931 or contact Darcy Telenko at 716-652-5400.

Sponsored by BASF, NutriAg, Siegers Seeds, Stokes Seeds, Gowan, Miller Chemical, Seedway, Dubois Agrinovation, and Arysta Life Sciences.

2018 Elba Muck Onion Twilight Meeting: Herbicide Trial Tours

June 21, 2018 | 5:30 PM - 8:00 PM
Mortellaro's Red Shop in the Elba muck land, Elba, NY 14058

All onion growers are invited to this event which will feature trial tours and demonstrations of pre- and post-emergent weed control in direct seeded onions. See page 9 for more info on planned agenda. 2.0 DEC recertification credits will be offered for those that attend the entire meeting. FREE! Contact Christy Hoepting at 585-721-6953 with questions.

Ontario Produce Auction Growers Meeting

July 17, 2018 | 6:00 PM - 8:00 PM
Jonathan Sensenig, 5299 Crowe Rd, Stanley, NY 14561

This course will demonstrate pest management in fresh market vegetables in both field and greenhouse (high tunnel) vegetables, primarily for those growing for wholesale auction. A hands-on demonstration of weed, insect and disease identification in vegetables including management options. FREE! Contact Judson Reid at 585-313-8912 for more info.

New York Soil Health Summit

July 18, 2018 | 9:30 AM - 6:00 PM
Empire State Plaza Conference Center, downtown Albany, NY

This event, organized by the New York Soil Health project, is for farmers, researchers, agriculture service providers, government agencies, non-profits and policy-makers interested in advancing soil health efforts across the state. Topics include local experts/grower panel, research and policies relevant to soil health, and Soil Health Roadmap breakout sessions.

Registration, summit agenda, and other details are available at: summit.newyorksoilhealth.org For more information, contact David Wolfe (dww5@cornell.edu) or Aaron Ristow (ajr229@cornell.edu). *New York Soil Health is funded through New York State Department of Agriculture & Markets.*

Finger Lakes Produce Auction Twilight Meeting

July 27, 2018 | 6:00 PM - 8:00 PM
5351 Jessop Rd, Dundee, NY 14837

This course will demonstrate pest management in fresh market vegetables in both field and greenhouse (high tunnel) vegetables, primarily for those growing for wholesale auction. A hands-on demonstration of weed, insect and disease identification in vegetables including management options. FREE! Contact Judson Reid at 585-313-8912 for more info.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

Weekly Weather Summary: 6/05 - 6/11/18

Location**	Rainfall (inch)		Temp (°F)	
	Week	Month June	Max	Min
Albion	0.04	0.71	81	44
Baldwinsville	0.06	1.55	84	46
Bergen	0.11	0.95	77	46
Buffalo*	0.04	0.06	79	50
Burt	0.02	0.02	75	47
Ceres	0.36	1.02	82	44
Fairville	0.05	1.35	77	45
Farmington	0.10	NA	79	44
Gainesville	0.14	0.66	76	43
Geneva	0.05	0.78	76	59
Lodi	0.07	0.91	81	48
Niagara Falls*	0.11	0.71	80	52
Ovid	0.05	1.31	79	48
Penn Yan*	0.10	2.17	76	51
Phelps	0.07	0.86	68	42
Portland	0.12	0.31	75	48
Rochester*	0.08	0.96	77	52
Silver Creek	0.01	0.03	76	48
Sodus	0.05	NA	76	44
Versailles	0.00	0.04	80	45
Volney	0.00	0.51	76	45
Williamson	0.10	0.89	75	46

Accumulated Growing Degree Days (AGDD)
Base 50°F: April 1 - June 11, 2018

Location	2018	2017	2016
Albion	590	460	463
Baldwinsville	629	508	493
Bergen	550	441	408
Buffalo	637	477	499
Burt	491	411	NA
Ceres	539	434	354
Fairville	533	434	410
Farmington	554	445	431
Gainesville	448	356	318
Geneva	569	478	458
Lodi	650	571	511
Niagara Falls	656	543	526
Ovid	599	525	480
Penn Yan	608	519	477
Phelps	526	473	445
Portland	589	529	460
Rochester	644	515	487
Silver Creek	520	497	429
Sodus	524	460	392
Versailles	582	515	433
Volney	531	430	NA
Williamson	507	485	397

* Airport stations

** Data from other station/airport sites is at: http://newa.cornell.edu/ Weather Data, Daily Summary and Degree Days.

Cornell Cooperative Extension
Cornell Vegetable Program

480 North Main Street
Canandaigua, NY 14424

VEGEdge

YOUR TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

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VegEdge is the award-winning newsletter produced by the Cornell Vegetable Program. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas and research results from Cornell and Cornell Cooperative Extension. VegEdge is produced every few weeks, with frequency increasing leading up to and during the growing season.

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Cornell Cooperative Extension
Cornell Vegetable Program

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