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Mealybugs

Judson Reid, Cornell Cooperative Extension, Cornell Vegetable Program

Mixing vegetables and ornamentals is common practice for growers in our region. This could include bedding plants alongside vegetable transplants, or hanging baskets above in-ground tomatoes. There is generally sufficient revenue in the temporary combination, that growers willingly assume some risk of cross contamination with pests and diseases. One unique pest not often found on vegetable crops, but possible in the presence of ornamentals, is the Mealybug.

This group of insects are similar to scale, and the larger female adults have bodies covered in a cottony growth. Male mealybugs are much smaller and winged. These insects injure crops by sucking sap, and are unsightly enough in and of themselves to make ornamentals unmarketable. Their droppings can also be the sight of Sooty Mold outbreaks. There are Mealybug species that will overwinter in New York, but greenhouses, particularly with 'mother' or perennial plants are overwintering hosts that contaminate annual crops.

Control Options

There are several biological controls listed as effective against Mealybug including Lacewing and Ladybeetles. The Mealybug was actually the target of one of the OG



An adult female Mealybug extracts plant sap, which leads to unmarketable ornamentals and severe yield loss on vegetables. *Photo: J. Reid, CCE Cornell Vegetable Program*

About VegEdge

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.



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.

We're interested in your comments. Contact us at: CCE Cornell Vegetable Program 480 North Main Street, Canandaigua, NY 14224 Email: cce-cvp@cornell.edu Web address: cvp.cce.cornell.edu

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Our next issue of VegEdge newsletter will be produced on May 29, 2024.

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biocontrols; the Mealybug Destroyer, imported from Australia in the 1800's. The adult stage of the Destroyer is shaped liked a typical ladybeetle, but smaller and solid brown and orange colored. The larval stage is cottony in appearance (not unlike Mealybugs). The Destroyer is available commercially. Be sure to order the correct species (*Cryptolaemus montrouzieri*).

Organic spray options include Beuaveria and azidiractin based products. These products will require multiple applications and are encouraged when populations are low.

There are conventional sprays to control Mealybugs in mixed greenhouses. Ventigra (afidopyropen group 9D) has a label for both ornamental and vegetable transplants including brassicas, cucurbits and tomatoes/peppers. This material may not be applied to vegetables grown to harvest in a greenhouse or in the field. Note there are waterway setbacks and phytotoxicity potential with this material. Another parallel label with another mode of action is Safari 20 SG (dinotefuran group 4A). This can be applied to ornamentals, vegetable transplants *and* tomatoes grown to harvest in a greenhouse.



In this photo we can see multiple life stages of Mealybugs. The adult females are most obvious as they are large, ovals with hairs coming off their bodies. *Photo: J. Reid, CCE Cornell Vegetable Program*

Optogen Herbicide (a.i. bicyclopyrone) Now Labeled in New York

Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

Optogen Herbicide (WSSA 27; EPA No. 100-145; a.i. bicyclopyrone; Syngenta). Labeled for pre- and post-emergent weed control of grasses and broadleaf weeds in broccoli, garlic, horseradish, onion (dry bulb and green) and watermelon (vegetable uses only).

Optogen in Onion

In onion, we have been eagerly awaiting this registration in New York, because Optogen + Buctril (a.i. bromoxynil) or Chateau results in excellent post-emergent control of ragweed. As a WSSA group 27 herbicide, Optogen provides a unique mode of action to the onion herbicide roster in New York, which is good stewardship for herbicide resistance management.

In onion, Optogen is labeled:

- For control of weeds pre- and post-emergent
- Pre-emergent to onion. Only on muck soils. 2.6-3.5 fl oz/A
- Post-emergent to onion as a row middle or directed spray. 3.5 fl oz/A. No leaf stage restrictions.
 - Avoid spray contact with onion foliage.
 - Use on muck soils.
 - The label states "use on mineral soil will result in crop injury", which is often catastrophic (may kill onions).
 - May be used with nonionic surfactant (NIS), crop oil concentrate (COC) or ammonium sulfate (AMS). Note (C. Hoepting):
 If there is any risk of this treatment coming in contact with onion foliage, I would not use Optogen with surfactants.
 - Works best when weeds are small (<2").
- Tank mixtures are allowed but can increase risk of crop injury.
- DO NOT make more than one application per crop per year.
- PHI: 21 days for green onion. 45 days for bulb onion.
- Under adverse weather conditions (cool, wet, poor crop growth), temporary crop bleaching may be observed following application.

CR P Insights

Observations from the Field and Research-Based Recommendations

GENERAL

Black cutworm (BCW) alert for corn and vegetable crops (from Mike Stanyard, CCE Field Crops Specialist): "Many counties will hit the 300-degree day mark today, (5/22), and that means the first wave of BCW are big enough to start cutting corn plants. I was able to scout some (field) corn this week and found cutworm feeding on leaves and a couple that the leaves were chewed off and lying next to the plant." Large numbers of black cutworm moths were captured in western, NY traps beginning April 24th and through this week (<u>https://blogs.cornell.edu/nwny-dairy-livestock-field-crops/</u>), which means cutworm larvae will likely be present throughout June. **Young seedlings (preferred) and transplants of vegetable crops can be killed by black cutworm larvae, especially beets, carrots, cucumber, leafy greens, melons, peas, potato, pumpkin, snap beans, squash and sweet corn. For more information on black cutworm biology and management, see: <u>https://vegento.russell.wisc.edu/pests/black-cutworm/</u>. If an insecticide treatment is needed based on scouting thresholds, conventional growers can apply a pyrethroid, with bifenthrin recommended because of its long residual. For organically grown crops, our current best thinking is that a mixture of azadirachtin and pyrethrin provides the best chance of control. – JK**

BEETS

Beet seedlings are very susceptible to black cutworm feeding and should be scouted starting this week. For conventional growers, bifenthrin has the longest residual and most acute activity of the pyrethrins. Sniper LFR (bifenthrin) or Hero (bifenthrin plus zeta-cypermethrin) are labeled in table beets. Seneca Foods reports that planting of the processing crop is about 70% complete. Weed management is critical when weeds are small. If Dual Magnum and/or Nortron were used Pre-Emergence and had enough moisture to activate, there can be excellent weed control. However, scout fields soon after beet emergence to look for weed escapes and plan a post-emergence herbicide application based on the weed species that are present. Nortron, UpBeet, Spin-Aid and Stinger are broadleaf herbicides and are commonly tank mixed. For management of grass weed escapes, Select Max or Poast herbicides can be used. For more information on management of weeds in table beets, see the article "Grow Beets, Not Weeds" in the February 3, 2020 issue of VegEdge. – JK

CARROTS

Planting of the processing crop is about 70% complete. Weed management is important with post emergent herbicide options available through the 6-true leaf stage (see the Cornell Guidelines and product labels). – JK



Figure 1. (Bottom) Diamondback moth larva and feeding damage on collard leaf. Feeding damage looks like small irregular windowpane holes. (Top) Imported cabbageworm egg on collard leaf. *Photo: L. Koenick, CCE CVP*

COLE CROPS

Cole crop caterpillars are active! Seeing diamondback moth (DBM) larva and imported cabbageworm (ICW) eggs on brassicas (Fig. 1). When mature, DBM larva are much smaller than ICW larva and do not have the yellow stripe down the center of the back. DBM larva feeding damage looks like small irregular windowpane holes on leaves (Fig. 1). The windowpane look comes from larva feeding on the inside of the leaf outward leaving the outer leaf layer intact. DBM pupae create mesh gauze-like cocoons frequently seen on the underside of leaves (Fig. 2). When small, ICW larva feeding damage can look similar to DBM damage. As ICW larva get bigger, they can chew large, irregular shaped holes in leaves. ICW eggs are small bullet shaped eggs with ridges that start white and yellow as they mature (Fig. 1). DBM adult moths have diamond-shaped spots along the center of their back and are active at night. ICW adult butterflies are white with a few black spots on the wings and are active during the day. Floating row cover can be effective at excluding caterpillars from the crop but must be put on before the adults arrive. - LBK



Figure 2. Diamondback moth pupae on underside of collard leaf. *Photo: L. Koenick,* CCE CVP continued on page 5

ONIONS

The young onion crop is looking good! A decent rain followed by two days in the 80s has meant good growth for the onions this past week. Earliest direct seeded onions are at the 2-leaf stage with most of the crop in some stage of flag-to-1-leaf, while earliest transplanted onions are at the 5-6 leaf stage. Most of the barley nurse crops have been killed. Pre-emergent weed control has generally been effective this spring. Once fields reach the 1.25-1.5 leaf stage, they can tolerate Chateau 1-2 oz/A (I usually go with 2 oz) or Goaltender 2 fl oz/A (I sometimes use 3 fl oz) for post-emergent control of weed escapes 1" or less. **Optogen with active ingredient bicyclopyrone is now labeled in onion in New York**, just in time for post-emergent to onion applications – see page 3. Buctril 2E 8 fl oz/A (a.i bromoxynil) + Optogen 3.4 fl oz/A provides excellent control of ragweed, marsh yellowcress and Lady's thumb, and puts an excellent "hold" on perennial sowthistle that keeps it small until Stinger can be applied at 4-leaf. For ragweed, in my research trials, I have had much success with Buctril 2E 8 fl oz/A + Optogen 3.4 fl oz/A applied at 2.5 leaf onion stage, which usually killed all ragweed 2 inches or less and often picked up some 3-4 inch (and sometimes 6 inch) ragweed. Depending on how early ragweed escapes come through, they may need to be burned back with Goaltender/2XL prior to 2.5 leaf stage to keep them 2 inch or less. Note that **for post-emergent use in onion, Optogen is only labeled as a directed/row middle spray**. Use caution when trying a new herbicide for the first time: get your feet wet on small acreage before you jump right in and treat the whole farm. I'm not sure of its availability in NYS, but it has been labeled in the rest of the country for the past year.

The 80-degree temperatures have been favorable for **onion thrips in transplants**. All transplants with 4-6 green leaves should be scouted this week. The spray threshold for first application of Movento is 0.6 - 1.0 per leaf. I'm not sure if any fields have reached the spray threshold yet and do not want to start thrips insecticide program unnecessarily early, but also don't want to miss a timely first spray (because we all know how that goes). I also noticed that **volunteer onions are loaded with adult onion thrips right now**. In Elba, these could be sources of IYSV. If possible, it would be great if volunteer onions could be removed from onion fields immediately, before they disperse into the onion crop.

Mark your calendars – The annual Muck Onion Twilight Meeting in Oswego has been set for Thurs., June 20, 2024. – CH

PEAS

The processing pea crop is looking good, and growers are trying to find dry ground to finish up planting. Weed management is critical during the period up to flowering (see the general article on page 6). One item to note this year is that Raptor herbicide is now being sold under the product name Beyond Xtra. This is the same active ingredient (12.1% ammonium salt of imazamox) and simply a melding of the product labels Raptor and Beyond into a single product called Beyond Xtra. Stocks of Raptor can still be used up. While not new, Varisto is a convenient pre-mix of imazamox and bentazon. – JK

SNAP BEANS

Planting of the processing crop began late last week. Take note of the info on Raptor herbicide in the pea section. – JK

SQUASH

Don't slack off on monitoring your seedlings. Bacterial diseases can be seedborne and often show up on young seedlings as collapsing, spotty, discolored cotyledons or early true leaves. Stress and excessive humidity (moisture) helps express and spread the disease. Be on top of any sketchy seedlings and act quickly to isolate and treat them away from the rest of your crop. Bacterial diseases move like wildfire in transplant production.

No one wants to hear this, but this warm weather with rain feels a lot like the conditions that support P.cap development during peak summer. Just throwing that out there as an awareness thing for those of you with a field history of phytophthora blight.

SWEET CORN

Seedcorn maggot was found at prominent levels in a fresh market field this week that had recently emerged. The crop looked good because the maggots were mostly in the remnant seed kernel. The maggots were discovered when digging up some seedlings. Once maggots are present in a field, it is not effective to apply insecticide. For newly planted fields, if seed-corn maggot flies are active, then Capture LFR (bifenthrin) can be banded over the rows for protection. For more information, see the general article on page 9 of last week's VegEdge (May 15, 2024). – JK

Corn traps are going up this week across the region. If you're in Niagara, Erie, Orleans, or Genesee and would like to receive trap counts by text message, reach out to Elizabeth Buck at 585-406-3419. − EB ●

Processing Green Peas: Post-Emergence Weed Control with Herbicides

Julie Kikkert, Cornell Cooperative Extension, Cornell Vegetable Program

The earliest planted peas are flowering while others were recently planted. Scouting and managing weeds in all pea fields is critical until the crop begins flowering. The best opportunity for control is when the weeds are small. Growers of conventional processing peas rely largely on herbicide use for weed management and most apply a pre-emergence herbicide. The application of post-emergence herbicides should be based on the dominant weed species present and the growth stage of the peas. A chart on relative effectiveness of herbicides available for peas in NY for 2024 is available on the CVP website in the pea crop section. Contact Julie Kikkert at 585-313-8160 if you would like a copy of the chart mailed to you. Note that this chart is only for succulent green (English) peas. If you are growing edible pod or other types of peas, please make sure to look at the product labels carefully.

Application of post-emergence herbicides to succulent peas must be made at certain growth stages. Herbicide labels often refer to peas at a certain number of nodes (point where a leaf meets the stem). In peas, the first two nodes have only scale leaves and are often below the ground (Fig. 1). These should be counted in green peas. (Note counting is different for dry field peas.) Furthermore, afila (leafless) peas do not have true leaves, rather they have stipules (small leaflike appendages) and tendrils (curly threadlike structures). Table 1 lists the average node to first flower for commonly grown varieties.

Basagran and Thistrol don't have any soil residual, so the best time to spray is when the majority of weeds have emerged. Ideally, the first flush of weeds would have one or two leaves and the next flush would be in the cotyledon stage. Keep in mind that rain will stimulate new flushes of weeds. If you have nightshades, pigweed or mustard in your field, a better choice may be Beyond Xtra (Raptor) or Pursuit. Basagran will only control hairy nightshade, whereas Beyond Xtra (Raptor) and Pursuit will control both hairy and eastern black nightshade. Poast, Assure II/Targa and Select

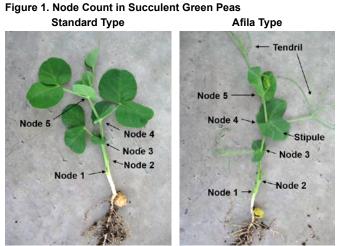


Image by Julie Kikkert, CCE Cornell Vegetable Program

Max all provide good to excellent control of the most prevalent annual grasses in New York.

Although Basagran is labeled for <u>yellow nutsedge</u>, the rate we use in peas is too low to kill nutsedge, however, you may see suppression of weed growth. That is why on the pea herbicide chart Basagran is given a "poor" rating on yellow nutsedge. In the future, make note that s-metolachlor (Dual Magnum or Dual II Magnum) applied pre-emergence is very effective against nutsedge. Better yet, control nutsedge in fallow fields or rotational crops as a long-range plan for a particular field.

If you have Canada thistle in your fields, you may either handpull if there are small patches or apply a spray of Thistrol when the thistle is 4 to 10 inches tall. Use a rate of 3 to 4 pints/acre. This will prevent the thistle from forming flower buds that can contaminate the pea product, but will not kill the thistle. Remember that Thistrol cannot be applied to peas that are later than 3 nodes before flowering. In early peas, those at nodes 9-11, the timing of this postemergence application is critical. Late applications in early peas cause nonuniform flowering, resulting in uneven maturity. Canada thistle management is best done in rotational crops or in the fall. Stinger (not labeled in peas!) is the most effective herbicide, because it moves to the roots. Note that there is an 18-month restriction before you can plant peas in a field where Stinger has been applied. Stinger is labeled for field corn, sweet corn, cabbage, beets and spinach, and pasture/forage crops. The optimal time for application is in April and May before the thistle buds open. Later in the season, you can use 2,4-D in labeled crops (not peas). In the fall, Roundup + Banvel can be used.

Table 1. Average node to	first flower for	commonly	grown
processing pea varieties	in New York		

Variety	Vine Type	1st Node to Flower		
Early Season				
Eldorado	Standard	9 to 10		
FP 2269	Afila	9 to 10		
PLS M-14	Standard	9		
Premium	Standard	9		
Mid-Season				
DA1470	Determinant Afila	12 to 13		
Idalgo	Afila	12		
Portage	Afila	10		
Saltingo	Afila	11		
Late-Season				
Amnicon	Afila	15		
Boogie	Afila	14 to 15		
PLS595	Afila	14		
Ricco	Afila	15 to 16		
SV6844 QG	Afila	13 to 16 (17 QG)		
Extra Late-Season				
Ballade	Afila	18		
SV5685QG	Standard	14 🔴		

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Upcoming Events

Tree Fruit and Small Fruit Twilight Meeting May 30, 2024 (Thursday) | 6:30 pm - 8:30 pm Coulter Farms, 3871 N Ridge Rd, Lockport, NY 14094

Join specialists Anya Osatuke, Janet Van Zoeren, Robert Hadad, and Anna Wallis for a conversation about fruit and berry phenology, pest management, food safety and water quality. This series of monthly meetings will examine seasonal changes in tree fruit and berry crops, demonstrate scouting techniques, and discuss integrative pest management solutions to maximize the health and productivity of berry and fruit plantings.

Meetings are held on the last Thursday of every month, from April through July. Attendees are encouraged to bring pictures or descriptions of pests they are concerned about on their farm.

1.5 DEC credits will be offered in categories 1a, 10, and 22. This event is free to attend, and no pre-registration is required. Pizza and refreshments provided by Valent. Questions? Please contact aco56@cornell.edu

Future meetings:

- June 27 at Lakeview Apple Orchards, 2336 Barnes Rd, Penn Yan, NY 14527
- July 25 at Simpelaar Fruit Farms, 6018 State Rt 3, Mexico, NY 13114

Indoor Mushroom Cultivation, Post-Harvest Handling, and Food Safety

June 6, 2024 (Thursday) | 9:00 am - 12:00 pm Flat #12 Mushrooms, 37 Chandler St, Buffalo, NY 14127

This workshop is intended for mushroom producers and those considering mushroom production. Hosted by CCE Wyoming County, the workshop includes a tour and discussion of Flat #12 Mushrooms production process, from substrate to sales, including their food safety plan creation, implementation, and the audit process. Alternative production methods will also be discussed.

Speakers include Flat #12 Mushrooms staff, Lori Koenick and Robert Hadad from the Cornell Vegetable Program, Mark Scapena, NYS Ag & Markets Produce Safety/Food Inspector, and CCE Wyoming Educator Don Gasiewicz.

COST: \$10/farm. Register online at <u>https://reg.cce.cornell.edu/In-</u> <u>doorMushroomCultivation_256</u>, by calling 585-786-2251 or email Don Gasiewicz, <u>drg35@cornell.edu</u> by June 2.

Muck Onion Twilight Meeting in Oswego June 20, 2024 (Thursday)

Mark your calendars! More info will be available soon.

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VegEdge is the highly regarded 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 University 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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