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ALERT! Tomato Seed and Plants Potentially Contaminated with Virus of Concern

Meg McGrath, with input from Margery Daughtrey, Margaret Kelly, Marc Fuchs, Karen Snover-Clift and Elizabeth Lamb, Cornell

Tomato brown rugose fruit virus (ToBRFV) has been found this spring on seed of two tomato varieties, **Sweet Prince** and **Brandywise**, being sold to growers and gardeners. This emerging virus (first detected in the US in 2018) is **considered more serious than other viruses** because of the ease of spread when handling infected plants, the virus's long-term survival ability and damage to fruiting plants.

Recommendations

- If you are notified by a seed company regarding infected ToBRFV seed or see announcements about seed you purchased, the seed and any plants grown from them **must be de-destroyed** **NOT** composted, surface buried or thrown in a cull pile.
- **The infected lots reported were plants from Sweet Prince Lot #s NN21-SL-SP and NN22-SLSP2 and Brandywise Lot #s NS 10-II-br.**
- There are no treatments/sprays that will cure plants of ToBRFV or any other plant virus.
- **This virus can survive in soil for years**, thus there is potential for re-occurrence in future years in addition to potential for spread to other tomato and pepper plants with handling.



ToBRFV-infected tomato leaves. Yellowing, bubbling, mosaic and mottling, fern leaf and leaf narrowing are all symptoms of ToBRFV on leaves. *Photo: Kai-Shu Ling, USDA-ARS*

See the [ToBRFV symptom guide](https://www.vegetables.cornell.edu/pest-management/disease-factsheets/tomato-brown-rugose-fruit-virus/) at <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/tomato-brown-rugose-fruit-virus/>.

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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.

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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 cve.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 Ochterski at aep63@cornell.edu. Total readership varies but averages 700 readers.

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The next issue of VegEdge newsletter will be produced on May 31, 2023.

Accumulated Growing Degree Days, 5/15/23

Sarah Caldwell, CCE Cornell Vegetable Program

**Accumulated Growing Degree Days (AGDD)
 Base 50°F: April 1 - May 15, 2023**

Location**	2023	2022	2021
Albion	191	180	111
Appleton	171	149	88
Arkport	176	146	105
Bergen	179	160	110
Brocton	196	208	135
Buffalo*	179	199	131
Ceres	150	134	118
Elba	166	161	102
Fairville	183	174	108
Farmington	191	180	117
Fulton*	172	179	103
Geneva	205	182	124
Hammondsport	179	181	116
Hanover	171	200	124
Jamestown	180	176	127
Lodi	235	230	122
Lyndonville	185	150	96
Niagara Falls*	193	199	90
Penn Yan*	208	175	134
Rochester*	202	179	113
Romulus	192	187	122
Sodus	209	190	125
Versailles	187	197	126
Waterport	179	133	70
Williamson	168	162	82

* Airport stations

** For other locations: <http://newa.cornell.edu>

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- **Follow strict sanitation practices** if you have infected plants, to include disposal or sterilization of all clothing, tools, trays, pots, hoses, benches, etc. Clean surfaces where plants have been with diluted bleach (an example of an appropriate solution is 8.2 fluid ounces of an 8.25% bleach made up to 1 gallon of solution—check whether the concentration listed on the label of the bleach you have is 8.25% and adjust if necessary).
- Handling infected seed **is not** known to allow seed-to-seed transmission of ToBRFV because the virus resides inside the seed not on the seed surface.
- **Handling infected plants** followed by handling healthy host plants **is a transmission method**.
- Minimize touching plants with hands, clothing and tools. Brushing plants to obtain sturdier stems is a dangerous practice because it may move viruses like ToBRFV, as well as bacterial pathogens. Watering seedlings is not considered to have enough force to transfer ToBRFV.
- When plants are handled, such as during transplanting, use hand sanitizer on gloved hands between plants when there is concern ToBRFV might be present.
- Check plants for symptoms at least once a week. Symptoms include mosaic and mottle, yellowing, bubbling in the leaf blade, and a ‘fern leaf’ look. If suspicious symptoms are seen, photograph and submit a sample to your local plant clinic. Symptoms will likely start to appear by about 4-6 weeks after seeding, but some varieties remain free from symptoms even though infected. See below for a symptom image guide.

For more information

See Cornell's [tomato brown rugose fruit virus symptom guide](https://www.vegetables.cornell.edu/pest-management/disease-factsheets/tomato-brown-rugose-fruit-virus/): <https://www.vegetables.cornell.edu/pest-management/disease-factsheets/tomato-brown-rugose-fruit-virus/>

ToBRFV affects tomatoes and peppers. For more information about ToBRFV damage and how it can be spread, see: <https://www.aphis.usda.gov/aphis/ourfocus/planthealth/import-information/federal-import-orders/tobrfv/faqs/general/general>

Testing

In New York, the Plant Disease Diagnostic Clinic is available for testing: <http://plantclinic.cornell.edu/> ●

Spring Buttoning in Broccoli and Cauliflower

Thomas Bjorkman, School of Integrative Plant Science, Horticulture Section, Cornell AgriTech

Having a broccoli planting produce heads only one inch across is a big disaster. This phenomenon is called buttoning. It happens when flowering is induced at, or soon after, transplanting. Buttoning is easily avoided by providing conditions that discourage flowering. The conundrum is that some otherwise effective practices for transplant production do encourage flowering.

Conditions that encourage flowering, and should be avoided include:

- Temperature below 55 °F
- Plants larger than five leaves
- Abrupt change from rapid growth to stress (i.e. transplant shock)
- Early maturity

Schedule transplant production so that the transplants only have four true leaves at transplant time. Don't hold them in the greenhouse longer, even if field conditions are not ready for planting. Move them to cold frames to begin hardening, which will slow their growth gradually. This greenhouse-production time is typically four or five weeks in 200-cell plug trays.

Minimize transplant shock by keeping the newly set plant well-hydrated. Make sure the root ball is covered, that enough water has been supplied, and that not too much heat and wind is expected in the first couple of days.

Low outdoor temperatures are not a problem in our transplant season, but may more often be a consequence of putting transplants in a cooler if they need to be held longer than originally planned. Using a cooler is especially tempting if the plants are getting too big, but that also makes them more sensitive to the low temperature inducing flowering.

Early varieties, such as Castle Dome, are more easily induced, so they should be handled with particular attention to prevent buttoning.

Growers should rarely experience buttoning when they transplant at the optimal small size, harden off gradually before transplanting, and using excellent transplant technique. ●



Premature heading results in unmarketably small heads. *Photo: T. Bjorkman, Cornell*

Pumpkins – Transplants or Direct Seed? Mulch or Bare Ground? How to Maximize Yield?

Steve Reiners, School of Integrative Plant Science, Horticulture Section, Cornell, and Sarah Hulick, Horticulture and Agricultural Technology, Cabrillo College

Interested in increasing your pumpkin yields? The traditional method of direct seeding in bare ground may be costing you money. Using transplants and/or plastic mulch could increase yields by 30% or more!

A study at Cornell AgriTech a few years ago grew Gladiator pumpkins in one of four ways. The first, the grower standard using seeds in bare ground. We also looked at three-week-old transplants with and without plastic mulch as well as seeding directly in mulch.

In the two-year study, the grower standard resulted in the lowest yield in terms of the number and pounds per acre. The three other establishment methods were significantly better in one year and showed a trend towards increased yields in the second. The standard treatment provided a marketable yield of about 22,000 pounds per acre versus 30,000 pounds per acre averaged over the other three treatments. In the second year, the difference was not as significant with yields in the standard method of about 19,000 pounds per acre versus 20,000 pounds. Average fruit size was similar, so the extra tons were due to fewer marketable fruit in the grower standard treatment.

Why the difference in years? Second year yields were down across all treatments due to problems with birds and damage from cutworms that required replanting of some plots. We believe that the first year's results were more indicative of what a grower might experience.

Based on these results, a grower could choose a stand establishment method that fits their farming operation:

- No plastic layer? Then transplants in bare ground are a good option.
- Plastic layer but no greenhouse to grow transplants? Direct seed in holes cut in the plastic.
- Surprisingly, the hybrid (and most expensive) system of using transplants with mulch, did no better than the other two treatments.

We also looked at whether larger transplant cell sizes would be beneficial. The small, 72-cell sized trays did just as well as the larger 36-cell trays. So, you can get more plants on your greenhouse bench.

Why did the grower standard treatment provide the poorest results? Likely due to the reduced stand in bare ground plantings, which may be 75 to 90% compared to better than 95% with transplants or seeds that germinate quickly in the warm soil under a plastic mulch.

Organic Recommendation

For organic growers and others who use no herbicides, a good option may be the transplants in bare soils. This will allow you to precisely space the transplants within rows. By doing this, you can cross cultivate both ways in the field, just prior to the vines running. The most weed free pumpkin field I have ever had was using this method without any herbicides.

Cost

We also estimated the cost of these establishment methods. The cheapest, of course, is the standard seeding into bare ground. The most expensive was transplants and mulch. Based on costs, we estimate a grower will get the most bang for their buck using the transplants in bare ground method. ●

Strawberry Anthracnose: Prevent Fungicide Resistance by Understanding the Disease

Summarized by Laura McDermott, CCE ENY Commercial Horticulture Program, from a fact sheet by Dr. Menjun Hu, University of Maryland, Kathy Demchak and Dr. Timothy Elkner, Pennsylvania State University

Many NY strawberry growers have struggled recently with anthracnose caused by *Colletotrichum* species. This genus of fungi is ubiquitous in our environment. Anthracnose causes dark brown sunken lesions on petioles or leaf tissue, blighted blossoms, and wilting or dying plants. Flowers can be blighted as if infected with Botrytis, but not exhibit the tell-tale grayish fuzzy growth of that disease. Berry caps and leaves will have brown or black lesions with irregular margins and can exhibit the slimy orange spores that are characteristic of anthracnose. Sometimes you just see hard, brown areas on green fruit with blackened seeds.

What to do?

1. Watch for symptoms, especially if the weather is warm and wet.
2. Cultural controls help! Improve air movement and reduce inoculum sources by keeping fields weed-free. Reduce rain splash

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by putting straw in row middles and tucking up under plants. Rotate crops and fields annually. Manage row covers to avoid heat buildup and prevent moving inoculum across the planting. Remove infected berries from the field. Harvest infected fields last each day.

3. As heat increases during the season, focus on protecting developing fruit by using an effective fungicide program that will also delay resistance. Start with the protectant fungicides captan and thiram either alone as part of the rotation, or as a tank-mix partner with each spray application. Note that thiram has better efficacy against *Botrytis* but captan can do a much better job for anthracnose. Growers are limited to 5 applications of thiram per year (which has a 3-day preharvest interval), and 8 per year of captan if the maximum rate of captan is used.
4. Use effective fungicide materials and rotate fungicide classes for resistance management (always follow the label). Azoxystrobin (Abound), a category 11 fungicide, has been the backbone of the fungicide program for years. **Dr. Hu found widespread resistance to azoxystrobin in plants from the Mid-Atlantic states and PA.**
 - Switch (group 9 + 12), and Oso/PhD (group 19) have received good ratings in the South.
 - The group 3 products difenoconazole and propiconazole have shown very good efficacy against anthracnose based on lab testing. Inspire Super contains difenoconazole with cyprodinil - one of the active ingredients in Switch, so watch rotations if also using Switch. Various products such as Tilt contain propiconazole.
 - Other group 3 fungicides labeled for use on strawberries for other diseases are ineffective for anthracnose based on lab testing.
 - Be particularly cautious using group 11 + 7 mixes, such as Pristine and Merivon. The possibility of resistance to the category 11 components means the products may be ineffective, and the category 7 components have little if any effect on anthracnose.

Why is anthracnose problematic and how does it spread?

Changes in climate, production systems, cultivars grown, and plant handling have combined to make anthracnose more prevalent in our region than ever before. Strawberry plants propagated by nurseries in tissue culture labs begin free of disease, but when they spend time in the field, they are exposed to inoculum. Sometimes, despite nurseries' best efforts at containing disease and minimizing resistance, plants may become infected and arrive at your farm bearing small amounts of inoculum but presenting no symptoms. When weather conditions are warm and wet, symptoms will appear. Rainwater splashing on plastic mulch will bounce spores from one plant to the next – resulting in an epidemic on your farm. Many weed species can also be infected with *Colletotrichum* and research has shown that controlling infected weeds with certain herbicides (glyphosate and paraquat) may trigger the fungi to sporulate, perhaps as a survival mechanism. Inoculum can also be transported on denim clothes, workers' hands and row covers. These factors complicate management.



Early infection on green fruit. Note black seeds and orange-salmon spores characteristic of anthracnose infection. *Photo: Kathy Demchak, Penn State*



Anthracnose causing blackening of green fruit and blossom blight. *Photo: Dr. Tim Elkner, Penn State Extension*



Ripe strawberry fruit showing sunken area with black seeds indicating anthracnose infection. *Photo: Kathy Demchak, Penn State*

Changes in pesticide registrations occur constantly and human errors are possible. Read the label before applying any pesticide. The label is the law. No endorsement of companies is made or implied. ●

One- vs. Two-Step Kill of Barley Nurse Crop in Direct Seeded Onion

Christy Hoepting, Cornell Cooperative Extension, Cornell Vegetable Program

Onion seedlings are tiny during their first month of life, which makes them extremely vulnerable to damage and mortality from wind erosion. Barley is commonly used as a nurse crop to protect young onion seedlings from the ravaging effects of wind. Barley is planted at the same time as the onions, either between the onion rows or as a broadcast application. Ideally, the barley nurse crop will continue to provide wind protection until the onions have reached the 2-leaf stage.

WHEN to Kill Barley Nurse Crop

- Killing of barley nurse crop is typically timed between flag and 1-leaf stage.
- Barley nurse cover crops will continue to provide crop protection for about 2 weeks after they are sprayed, but they will not use moisture or nutrients, and thus do not compete with the crop.
- When barley gets too big, it can trap air between the rows and increase the chances of seedling burn-off, and the barley can compete for moisture and nutrients, and stunt the onions.
 - There is a higher risk of burn-off in onions that have been treated with “heavy” rates or tank mixes of pre-emergent herbicides prior to onion emergence, or when seed was planted deep (0.75 to 1 inch), because the onion seedlings can be weaker in these situations.
 - Once barley has started to tiller, it is much harder to kill.
- Alternatively, killing off barley windbreaks too soon leaves the young onion seedlings vulnerable to wind damage, especially when conditions are dry.

HOW to Kill Barley Nurse Crop

- Use grass herbicides belonging to WSSA Group 1 (see table).

Grass Herbicides

Trade Name	Active Ingredient	Rate/A	Adjuvant
Select EC, Tapout, Intensity	clethodim	1 pt	0.25% NIS
Fusilade DX	fluzafop-p-butyl	0.5 pt	COC 1% v/v or NIS
Poast	sethoxydim	1.5 pt	COC 1% v/v

- These herbicides **work best when barley is actively growing**.
 - If barley has been nipped by frost, wind or Goal 2XL, it will be stressed, and the barley-kill herbicide will work better after waiting a few days.
- Select EC kills the barley faster than the other two herbicides by 3 to 4 days.
- It is common for Prowl to be applied with barley-kill herbicide. Since Prowl EC contains petroleum distillates in its formulation, the amount of crop oil concentrate (COC) required when using Fusilade can be reduced according to the following recommendations by Roy Ellerbrock (see tank-mixing table).

Tank-mixing Prowl EC with Fusilade

Rate of Prowl EC/A	Rate of COC with Fusilade
4 pt or more	None
Less than 4 pt	Half rate: 0.5% v/v (2 qt/100 gal)
No Prowl EC or Prowl H ₂ O	Full rate: 1.0% v/v (4 qt/100 gal)

Using a 2-Step Barley-Kill Method

- **Step 1:** e.g. Select EC 10-16 fl oz/A at **loop-flag**. This application stunts the barley so that it does not tiller.
- **Step 2:** e.g. Fusilade 8 fl oz + Goal 2XL 0.25-0.5 fl oz/A **5-7 days later** (flag-1st start to 1-leaf/flag intact).
- Be aware that COC will heat up Goal 2XL considerably and will also kill the barley faster. To compensate for the faster barley kill, you can use a lower rate of barley-kill herbicide.
- It is recommended to use different products for each barley-kill application.
- Advantages of 2-step barley-kill technique:
 - Barley does not tiller or get too big to compete with and stunt the onions
 - **There are two timings to incorporate applications of pre-emergent herbicides Prowl and/or Outlook.**

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1. Opportunity to ensure 1-2 weeks between split application of Outlook. Studies have shown that when timing between split applications of Outlook exceeds 2 weeks, weed control decreases. For early plantings when onions are growing slow, there can be 3 weeks between first (pre-emergent to onion) and second (with barley-kill herbicides in 1-step program) split applications of Outlook.
2. 2-stepping Prowl EC into 2 x 1.5 pt/A applications in a 2-step barley kill program can be safer and offer a longer residual than a single 3 pt application in a 1-step barley-kill program.

Barley-Kill Timing (1-Step vs. 2-Step)

Barley-Kill Program	Step 1			Step 2		Final Result (June 4): Onions 2-2.25-Leaf
	Date	Crop Development Stage and Herbicide Application	Progress (May 24): Onions 1-Leaf/Flag Intact	Date	Crop Stage and Herbicide Application	
1-Step	May 19	Onions: Flag – Flag-1st start; Barley: 6-8"/tillering Select 16 fl oz + COC 1% v/v (4 qt/100 gal)	(5 days after Step 1) 	--	--	
						
2-Step	May 14	Onions: Loop-flag; Barley: 5-6"/3-leaf Select 10 fl oz + COC 1% v/v (4 qt/100 gal)	(10 days after Step 1, and 1 day before Step 2) 	May 25	Onions: 1-leaf/flag intact Fusilade 8 fl oz + COC 1% v/v (4 qt/100 gal)	
						

Figure 1. 1-step (top) and 2-step (bottom) barley kill programs in direct seeded onion. Left: Crop stage at the timing of only (1-step) and first (2-step) barley kill herbicide application. Middle: Size of barley when onions are most vulnerable to heat stress/burn-off between 1- and 2-step barley kill programs. Right: Biomass of dead barley between 1- and 2-step programs when onions are at 2-leaf stage. *Photos: Christy Hoefting, CCE Cornell Vegetable Program* ●

\$600 Payments for Farm Employees

Cornell Cooperative Extension Agricultural Workforce Development

New York employers should direct employees to Pasa’s Farm and Food Workers Relief Program to receive their \$600 relief payment.

The U.S. Government budgeted \$667 million in grant funding “to defray worker expenses incurred preparing for, preventing exposure to, and responding to the COVID-19 pandemic.” USDA distributed the funds to fourteen nonprofit organizations; find more details at this [USDA site](https://www.usda.gov/press-releases/2021/05/12/USDA-allocates-667-million-to-respond-to-COVID-19-pandemic). The funds are supposed to be distributed to frontline farm and food employees who worked in the U.S. during the COVID-19 pandemic. For New York farmers, a trusted partner to direct employees to receive this payment is [Pasa Sustainable Agriculture](https://pasafarming.org/) at <https://pasafarming.org/>; apply by phone at (833) 469-3397.

Pasa set up a dedicated website to administer the [Farm and Food Workers Relief Program](https://farmworkers.com/) at <https://farmworkers.com/>. New York employers should direct employees to this website to access this payment if they are eligible. All details about eligibility and other matters can be found at the Pasa site, but it is minimal, consisting of photo identification and proof of employment.

Pasa also developed a flyer about the program in English and Spanish. Download the [Pasa Farm and Food Workers Relief Program Flyer – English \(pg 1-2\)](#) – [Spanish \(pg 3-4\)](#). ●



CROP Insights

Observations from the Field and Research-Based Recommendations

BEETS

Early planted beets are growing well. Planting of the processing crop is about 50% complete according to Seneca Foods. Bacterial leaf spot (BLS) can develop early in the season under cool, wet conditions. Infected plants will have dark, uneven lesions especially on the leaf edges which causes leaf puckering. Plants will usually grow out of BLS with warmer weather. Management of weeds is critical early in the season. Large flights of black cutworm moths came into WNY the week of May 3rd. The field crops educators keep track of accumulated degree days to estimate egg hatch and larval growth stage. We will keep you up to date on the development of this pest and the critical time for scouting (typically in June). – JK

CARROTS

Good progress has been made on planting of the processing crop. – JK

GARLIC

Seeing mixed stands of strong plants, some spindly, and none at all lost to winter damage. Lack of sufficient snow cover and low temperatures caused exposed leaves to be damaged. Frost heaving pushed shallow cloves closer to the surface (and even out of the ground). Losses ranged from nearly 0 to 20%+.

Allium leaf miner (ALM) feeding damage reports from in and around the Finger Lakes indicate the pest is moving westward. In New England and NJ, ALM has become a serious early season problem on overwintered leeks and bunching onions as well as garlic. ALM are small flies that lay eggs into plant tissue. Larvae hatch and burrow into the tissue causing damage to the leaves. Damage from ALM ranges from unsightly surface marks to severe internal leaf damage that weaken and destroy leaves. Long rotations away from alliums can help. Exclusion using insect netting or row covers placed over the crop in early spring is useful but might not be practical with large planting. For chemical controls, Entrust, Exirel, and Radiant SC are options. Read labels for instructions and cautionary statements. – RH



An onion leaf stem is dotted with white marks from the leaf miner female depositing eggs into the plant tissue. These eggs will hatch and tiny larvae will burrow into the leaf causing damage to the tissue. *Photo from UMass Extension*

LETTUCE AND GREENS

If using transplants going into the field, check for green peach aphids. Finding many plants infested with aphids from the greenhouse then planted out in the field. The mild temperatures will allow for quick population increases. Hard to get rid of aphids, even dead ones when it comes harvest time going into the wash/pack stage. Some growers have tried to spray the transplants while still in the tray with water to rinse off before transplanting. For chemical control, there is a long list of products in the Lettuce section of the Cornell Integrated Crop and Pest Management Guidelines for Commercial Vegetable Production. – RH

ONIONS

Direct seeding onions is complete as transplanting continues. The earliest direct seeded onions are at 1-leaf and the earliest transplanted onions have 5 green leaves. Most direct seeded crops are in some version of the flag leaf stage, which is the most vulnerable for wind and heat injury. Killing the barley nurse crop is on the agenda for many fields this week – see article on barley-kill timing on page 6. Elba muck has been drier than Wayne and Oswego muck regions. Efficacy of pre-emergent herbicides may not be as good when conditions are dry. If you have weed escapes in direct seeded onions that are in the flag leaf stage (Fig. 1), addition of Goal 2XL 0.25 – 0.5 fl oz/A to barley kill herbicide tank mix may kill or significantly injure/hold back such escapes. Fig. 2 shows the results of a demonstration of this technique that I did last spring. Onions in the flag leaf are the most vulnerable to crop injury, and it is my preference that the majority of the onion population have the first true leaf starting to come before Goal 2XL is applied. The Goal can burn the tips of the flags and these tiny seedlings tend to recover quicker when the next leaf in line (1st leaf) is there to push it through. Not shown in Fig. 2, I compared 0.25 fl oz and 0.5 fl oz rate of Goal 2XL, both with the tank



Figure 1. Dry conditions resulted in reduced efficacy of pre-emergent herbicides in direct seeded onions, resulting in weed escapes that are cotyledon to 0.5 inch when onions are only at flag leaf stage. These weed escapes need to be controlled with the addition of Goal 2XL 0.25-0.5 fl oz/A with the barley kill herbicide tank mix. *Photo: C. Hoepfing, CCE*

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mix shown in Fig. 2 and with Prowl EC 4.5 pt without COC. The onion seedlings tolerated all treatments, although not unscathed, the higher rate of Goal 2XL resulted in more weed mortality, although the lower rate held them back pretty good (serving its purpose) and COC was not needed when high rate of Prowl EC 4.5 pt was used in tank mix. Onions in loop stage are more tolerant to Goal 2XL than flag leaf stage. Adding low rates of Goal 2XL to barley kill herbicide tank mix will also hurt the barley. The next opportunity to control weed escapes is at 1.25-leaf. When the onions reach this stage, some of the weed escapes that are there now will be 2 inch in size and will be too big for post-emergent herbicides to be effective. – CH



Figure 2. Demonstration of adding Goal 2XL 0.5 fl oz/A to barley kill herbicide tank mix, which effectively controlled pigweed escapes (pink circles), May 2022. Photos: C. Hoepfing, CCE

PEAS

The foliage of peas is very cold hardy and should not be damaged by the frost this week if temperatures do not get below 25°F. Should peas tops freeze, the plants will regrow from dormant buds below ground. This is not a good situation for processing peas because regrown stems will flower later than undamaged ones. Planting of processing green peas is on track with planting scheduled through next week. The heat last week promoted germination and growth. I observed some beautiful fields last Friday. Soil temperature and available moisture can influence the activity of soil applied herbicides. Make sure to have a plan for scouting and management of weed escapes. – JK

SNAP BEANS

Planting of processing snap beans is just getting under way as is typically scheduled to start May 15th. – JK

SWEET CORN

Planting of the processing sweet corn crop is underway. – JK

GREENHOUSE

IMPORTANT ANNOUNCEMENT: Basil downy mildew has been discovered in the CVP region. This is a very early occurrence and unfortunately may indicate the beginning of an all-season battle with the disease, both in the greenhouse and field. Basil downy mildew requires a living host, so the initial infection may have been seed borne. From Cornell Plant Pathologist Meg McGrath “cultural practices ...include fans to keep leaves moving to prevent water deposition, dehumidification of air and heat to keep relative humidity in the plant canopy below 85%, and lighting at night to prevent spore production.”

Varietal resistance is the best line of defense though. Meg’s research shows significant resistance (compared to susceptible variety DiGenova) in the Rutgers’ line (Obsession, Passion, Devotion and Thunderstruck) as well as Prospera (CG1, Red, Italian Pb-2, Compact Pb-2).



Downy mildew spores are visible on the underside of basil leaves. Photo: J. Reid, CCE

There are a number of fungicides available now as well: “Ranman (cyazofamid; FRAC code 21) and Revus (mandipropamid; FRAC 40) have targeted activity for downy mildew ... Their use is permitted in greenhouses. There are several phosphorous acid (phosphanate) fungicides labeled for this disease, including ProPhyt, Fosphite, Fungi-Phite, Rampart, pHorsePHite, and K-Phite. These are suggested to be used at low label rate tank-mixed with Ranman and Revus, which are recommended used in alternation for resistance management. Heritage SC (azoxystrobin; FRAC 11), Micora (mandipropamid; FRAC 40), Segovis (oxathiapiprolin; FRAC 50), and Subdue MAXX (mefenoxam; FRAC 4) are additional fungicides that can be used in greenhouse-grown plants for retail sale to consumers. It is important to use a fungicide resistance management program including alternation among as many chemistries based on FRAC code as possible. Heritage can be applied once to plants at each production stage, plug and finish. It must be applied in alternation with another fungicide. Micora and Segovis also can be applied at most twice to a crop. Micora can only be used in an enclosed greenhouse with permanent floor. Segovis can also

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be used in outdoor nurseries. Subdue MAXX can be applied once to foliage and must be tank-mixed with another fungicide labeled for this use and applied at full label rate. Phosphorous acid fungicides can be tank-mixed with any of these greenhouse fungicides. Micora, Segovis, and Subdue MAXX can only be applied to foliage of plants for retail sale as transplants; they are not permitted used on plants to be marketed as fresh herbs in grocery stores.” Prof. McGrath notes that all downy mildew spray programs are most effective when applied preventatively. – JR



This entire bench of basil is infected with Downy Mildew and should be destroyed. Plants pictured here are beyond recovery and will not produce harvestable yield for either commercial growers or retail garden sales. Photo: J. Reid, CCE



Red, Thai and Lemon basil varieties will generally not be as symptomatic as Italian flat leaf varieties. However, symptoms are still present and make this crop unmarketable. Photo: J. Reid, CCE ●

Upcoming Events

Tree Fruit and Small Fruit Twilight Meeting

May 25, 2023 (Thursday) | 7:00 pm - 8:30 pm (arrive by 6:45 pm to sign-in for DEC credits)
Coulter Farms, 3871 N Ridge Rd, Lockport, NY

Join Specialists Janet Van Zoeren (tree fruit), Anya Osatuke (small fruit), and Anna Wallis (fruit IPM) for a conversation about fruit and berry phenology and pest management. This meeting 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. 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. Event is FREE; no pre-registration required.

Staffing and Organizing Your Team

June 22 - July 27, 2023 (Thursdays) | 3:00 - 4:00 pm ET
Live weekly Zoom discussions

Cornell Agricultural Workforce Development has opened registration for **Staffing and Organizing Your Team**, a six-week course in the Supervisory Leadership Certificate program. Staffing and Organizing Your Team materials release June 16, 2023. From the comfort of your home or office, watch prerecorded presentations on your own schedule, and engage with classmates and instructors during weekly, live Zoom discussions held from 3 to 4 PM ET each Thursday from June 22 through July 27, 2023. Participation in the live sessions is highly encouraged and provides a valued opportunity for peer-to-peer learning and networking. Corresponding assignments are due each week. To get the most out of the experience, expect to spend approximately two hours per week on lessons and assignments.

Course topics include: becoming a preferred employer, personnel planning, job descriptions, recruiting and interviewing, hiring and onboarding. Course is applicable to all agricultural commodities and is appropriate for both new and experienced farm supervisors and managers, and those preparing to become supervisors.

Registration is \$275. [Register online](#) by June 16. Continuing education credits are now available for this course and the Supervisory Leadership Certificate program. Direct questions to Rachel McCarthy, Agricultural Supervisory Leadership Coordinator, at rachel.mccarthy@cornell.edu. Learn more about the [Agricultural Supervisory Leadership certificate program](#).

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Upcoming Events

Vegetable Pest & Cultural Management Field Meetings for Auction Growers

Ontario Produce Auction Meeting
June 27, 2023 (Tuesday)
A. Zimmerman Farm, Rushville, NY

Finger Lakes Produce Auction Meeting
July 12, 2023 (Wednesday)
Finger Lakes Produce Auction, 3691 NY-14A, Penn Yan

Seneca Produce Auction Meeting
August 2, 2023 (Wednesday)
Seneca Produce Auction, 2295 Yerkes Rd, Romulus, NY

These meetings will feature 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 such as inter-row cover crops, grafting and, where appropriate, spray options will be used to educate growers. Judson Reid, Senior Extension Associate with the Cornell Vegetable Program, along with CCE staff will instruct participants and facilitate peer-based learning. Details on each topic will focus on field observations at the farm.

DEC recertification credits will be offered (1.75 credits in categories 10, 1a, 23, 24). Exact time of the evening meetings will be released soon. For more information, contact Judson Reid at 585-313-8912.



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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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Cornell Cooperative Extension Cornell Vegetable Program

For more information about our program, email cce-cvp@cornell.edu or visit CVP.CCE.CORNELL.EDU



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