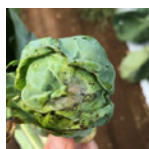




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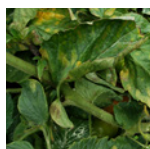
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Volume 16 • Issue 22 • September 16, 2020



Maintaining
Brussels Sprouts
Quality Through
the Fall Season

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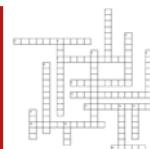
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Maintaining Brussels Sprouts Quality Through the Fall Season

Elisabeth Hodgdon, Cornell Cooperative Extension, Eastern NY Commercial Horticulture Program

The fall season is around the corner, and Brussels sprouts are sizing up around our region. In order to ensure a great yield of quality Brussels sprouts this fall, there are a few tasks to do in the late summer.

MANAGE INSECT PESTS (BE ON THE LOOKOUT FOR CABBAGE APHID)

Caterpillar pests (cabbageworm, cabbage looper, etc.), flea beetles, and cabbage aphids feed on leaves and sprouts, reducing marketable yield. Cabbage aphids are particularly problematic in Brussels sprouts compared with other brassica crops, because these tiny gray aphids nestle in the forming leaves of the sprouts. Once the aphids are under the leaves, they are difficult to reach with insecticide sprays, and cannot be washed off post-harvest. If sprouts are severely infested, they are rendered unmarketable.

To manage cabbage aphids effectively, begin scouting in late summer. Aphid outbreaks often occur in one or a few isolated spots in a field to start. Once aphids are crowded, winged individuals develop that fly within the field to find other host plants. Since aphids reproduce clonally, their populations grow very rapidly. I often notice that cabbage aphids situate themselves first on the top growing point of the plant (Fig. 1), and then move into the sprouts. If you



Figure 1. Cabbage aphids on growing point of Brussels sprouts plant.

Photo: E. Hodgdon, CCE ENY Commercial Horticulture Program

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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.

We're interested in your comments. Contact us at:
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The next issue of VegEdge newsletter will be produced on October 1, 2020.

Upcoming Events

View more events at CVP.CCE.CORNELL.EDU

Food Safety & Wash/Pack Facilities: Virtual Training

November 16, 2020 (Monday) | 8:45am - 1:15pm

FREE online training

A well-thought out Wash/Pack Facility can go a long way in improving produce quality, worker health and safety, and overall efficiency. But how can intentional design impact food safety? This virtual training will help farmers and workers understand the food safety risks present in wash/pack facilities and outline ways in which risks can be minimized. Topics that will be covered include:

- Common foodborne pathogens
- Sources and routes of contamination on the farm
- Personal health and hygiene practices
- Key aspects of facility design including ergonomics, hygienic design, and layout
- Post-harvest water management and sanitizer use
- Cleaning and sanitizing
- Tips for cleaning and sanitizing common wash-pack equipment

Register by visiting: https://cornell.zoom.us/meeting/register/tJ0pdeitpzo-pHddDRSBpt_dWf2eptEhenK0h

Or contact Robert Hadad, rgh26@cornell.edu, 585-739-4065.

Are you interested in receiving feedback on your layout? Have questions about cleaning your facility or equipment? **Please send photos, drawings, or maps of your facility or equipment to Caitlin Tucker, cv275@cornell.edu, by November 2nd.** Submitted photos will be included in the presentation to be discussed (anonymously) throughout the training.

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find that >10% of plants have at least one aphid, insecticide application is warranted. Several insecticide options are available, including neonicotinoids (Assail, Actara, Admire Pro), spirotetramat (Movento), flonicamid (Beleaf), and cyantraniliprole (Exirel). In particular, insecticides with translaminar movement are most effective. For organic growers, alternating sprays of M-Pede and Azera achieved control of cabbage aphid in a UNH study (see Additional Resources).

MANAGE DISEASE

Alternaria (Fig. 2), black rot (Fig. 3), downy mildew, and other diseases can cause discoloration on the outer leaves of sprouts. Alternaria, which is very common in our region, causes target spot dark lesions on Brussels sprouts leaves and black spots on sprouts. Removing lower leaves (which is usually only practical in small plantings), if plants do not self-prune, helps with disease management by increasing air flow within the leaf canopy.



Figure 2. Alternaria in Brussels sprouts. Photos: E. Hodgdon, CCE ENYCHP

PRUNE TO ENCOURAGE SPROUT DEVELOPMENT IN LATE SUMMER AND FALL

Research has shown that pruning off the main growing point (topping) encourages sprouts at the top of the plant to size up prior to harvest. Removing the growing point alters the hormone dynamics in the plant (auxin levels) and encourages the plant to divert resources into enlarging existing sprouts, rather than continuing to produce very small sprouts at the top of the plant that are not marketable at the end of the season. Topping Brussels sprouts also improves the aesthetics of the stem for retail sales in which sprouts are sold on stems.

Early Potato Storage Management

Original article written by Carol MacNeil, CCE Cornell Vegetable Program, September 2012; Edited by Margie Lund, CCE Cornell Vegetable Program, and Sandy Menasha, CCE Suffolk County

It is important to take time to properly clean and tune-up your storage facilities prior to this year's storage season. 95% of sanitation is cleaning off visible debris, so use high pressure air to clean debris from boxes, equipment and corners within the storage. Check air re-circulation and ventilation systems to make sure that air is moving properly through the storage, and that all insulation is in good shape to avoid spots of cold or dead air. Facilities and equipment can be cleaned with 5.25% chlorine bleach at a 1 gal/10 gal water rate. Any bins or equipment treated with quaternary ammonium compounds must be rinsed with drinkable water before coming into contact with potatoes.

If you wash potatoes going into storage the basic treatment to reduce disease is the use of AgClor 310, a chlorine formulation designed for produce wash water. It can reduce the spread of pathogenic bacteria in the water and help reduce subsequent bacterial soft rot in the tubers in storage. It will not control infections which have already occurred. For potatoes the chlorine level

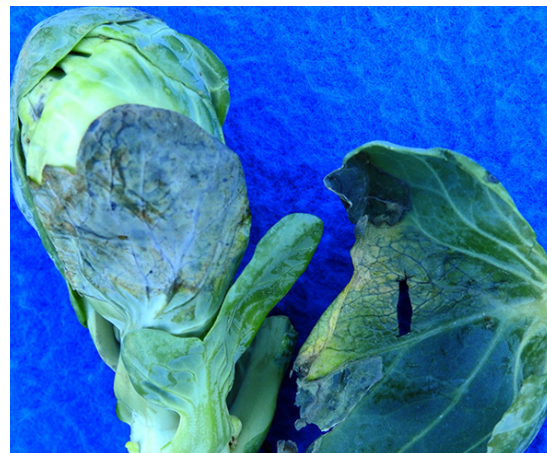


Figure 3. Black rot in Brussels sprouts.
Photo: M. McGrath, Cornell

When should you top your Brussels sprouts plants? The general rule of thumb is to top plants when the largest sprouts are between 0.5-1" in diameter. The date of topping varies by variety and the growing season, and can't be predicted reliably by calendar dates. A University of New Hampshire trial found that marketable sprout yields can be increased when plants were topped at this phenological stage, when harvest was no more than 60 days away. Topping too early reduced yield, and very late maturing varieties did not benefit from topping (see Additional Resources).

ADDITIONAL RESOURCES

Research report: Organic management of cabbage aphid (*Brevicoryne brassicae*) with insecticides on Brussels sprout in NH: 2016-2018, by Alina Harris, Becky Sideman, and Talia Levy.
https://extension.unh.edu/resources/files/Resource007551_Rep10946.pdf

Brussels sprouts variety trial and topping study, 2013 & 2014, by Becky Sideman and Olivia Saunders, University of New Hampshire:
https://extension.unh.edu/resources/files/Resource003914_Rep5563.pdf ●

continued on next page

should be maintained between 65 -125 ppm, in water with a pH adjusted between 6 and 7.5. This chlorine level is much higher than that in municipal water! Recheck the chlorine level frequently as soil and organic matter quickly tie it up. Use new clean foam rollers to reduce as much moisture as possible from potatoes and use air circulation to speed drying.

Additional post-harvest treatments are available for a number of storage diseases. It is important to use spray nozzles that produce very fine droplets for even coverage and minimal wetting. Keep tubers moving and rotating on the belt. Afterwards, ensure good air movement to promote tuber drying before packing or storing.

- Bio-Save 10LB (*Pseudomonas syringae*; Group NC) – Rate: 500 g/30 gal – has been shown to reduce the spread of Fusarium dry rot and silver scurf in storage. Agitate mixture to ensure proper suspension. Uniform coverage is necessary. Quantity will treat 3000 cwt.
- Stadium (*azoxystrobin + fludioxonil + difenoconazole*; Group 11 + 12 + 3) – Rate: 1 fl oz/2000lbs – Labeled to help reduce the spread of Fusarium dry rot and silver scurf in storage. Tubers should be tumbling during treatment to ensure proper coverage.
- Phostrol or OLP (*phosphorous acid*; Group 33) – Rate: 0.1 gal in 0.5 gal water – Labeled for suppressing the spread of late blight in storage. Ensure complete, even coverage. Only controls further spread in storage, will not cure tubers already infected. Not recommended for fresh market tubers.

The keys to early storage management of healthy potatoes are to cure the crop to promote suberization and wound healing, and to cool slowly

to reduce the risk of condensation. Cuts and bruises heal most rapidly under high relative humidity (90%) at 50 - 60°F for 2 - 3 weeks after harvest which reduces the development of decay and reduces shrink. Higher temperatures promote disease and lower temperatures slow curing. Air flow should be uniform throughout the storage facility to maintain consistent temperature and oxygen levels. Early in the storage season, air flow rates may range from ½ to 1 cu. ft./cwt/min. After curing, the air recirculation rate can be decreased and the temperature gradually lowered to 40°F for tablestock or seed; 50°F for chipstock; or 45°F for Kanona, Monona, or Snowden. Excessive air flow rates will lead to dehydrated tubers and interfere with wound healing. Relative humidity in storage should be as high as possible without causing condensation on the tubers. When field frost or late blight are present, the curing period should be eliminated, the temperature dropped as soon as possible, and the air recirculation rate kept high (up to 2 cu. ft./cwt/min) to limit spread of disease from tuber to tuber. Silver scurf is a common disease which is worse when tubers remain in the field too long after vine-killing, but it can also develop in storage. If it's a regular problem, or on high risk lots, lower the storage temperature as soon as possible and maintain relative humidity no higher than 85%. ●

Implementation of Site-Specific Management Using EC Mapping

Ali Nafchi, Cornell Cooperative Extension, Cornell Vegetable Program

Precision Ag is not just about GPS guided satellites and high-tech equipment. It is also about using site-specific information to make a better management decisions. Site-Specific Management is an innovative and new technology that will minimize the effect of production practices on the environment while optimizing farm profit. This technology matches field variability with an appropriate variable-rate input application, differentially applying chemical to match the needs of individual management zones within a field.

Clear soil information and crop response relationships can be one way to implement the site-specific management to address the tremendous field to field or even within field variabilities. There is still a lot of unanswered questions regarding precision Ag technologies that need to be answered (such as site-specific management and variable rate applications in terms of data interpretation, implication, rate, and placement of inputs).

For example, Clemson University in cooperation with the University of Arkansas has developed a site-specific nematicide application system to reduce the chemical use while increasing yields by applying nematicides only where damaging levels of nematodes occur using Electrical Conductivity data. The question is, can we use such technology for other pests infestations, and how? For example, with soil variabilities in a field, if the herbicide rate defined properly, with variable rate technologies (VRT), the ideal rate will provide adequate weed control while maintaining efficient use of herbicide. However, the appropriate rates for VRT herbicide applicators, still need to be carefully adjusted considering the huge field variability.

Using site-specific technology can help to reduce the drift potential of the pesticide application and increase the spray coverage under the boom.

Reference and links for more information:

[Site-Specific Technology Aids Nematode Control](#)

[YouTube-Soil Fertility - Fundamentals of Nutrient Management](#)

[Site Specific Nematode Management](#)

[Integrating Site-specific K Management with Other Site-specific Practices](#)

For print copies of these resources, contact Ali Nafchi at 585-313-6197. ●

Season Review Crossword Puzzle ANSWER KEY (puzzle on page 10)

Across	Down
3. Garlic bloat	1. Bacterial
7. Stemphylium	2. Gall midge
9. Sap beetle	4. Blossom end rot
11. Black cutworm	5. Rhizobacteria
13. Neonicotinoids	6. Wireworm
18. Western bean	8. Brown Rugnose
20. Sclerotia	10. Pressure washer
21. Boron	12. Botrytis
22. Leafminer	14. Cercospora
	15. Thrips
	16. Salt
	17. Downy
	19. Race
	23. Iron

Late Season Tomato Foliar Diseases

Judson Reid, Cornell Cooperative Extension, Cornell Vegetable Program

With shorter days and cooler nights in September, we see extended dew periods. The relative humidity within the canopy and standing water on the foliage lead to conditions conducive to infection. Spores of multiple diseases are blowing in the wind, and many tomato patches are living laboratories of plant disease. Tomato prices are high and farmers are busy with harvest, so management needs to be simple. Unfortunately, what works for one disease may not work for all. Identification is the first step.

As reported in the previous edition of VegEdge, Late Blight has been discovered in the South Western portion of New York, and is likely active in valleys throughout the region. Although Late Blight is of high concern due to its fast acting, destructive nature, many growers have learned to manage it, referring to the excellent chart and rotating through fungicides listed in Elizabeth Buck's Late Blight article in the [September 2, 2020 issue of VegEdge](#).

An important consideration in Late Blight management is Early Blight. Although they have the same last name, these two diseases are not related. Our observation this year is that losses to Early Blight far exceed Late Blight. Early Blight overwinters in the soil and on stakes, whereas Late Blight needs a living host.

Other lesser known diseases are active now too. Leaf Mold and Powdery Mildew are greenhouse tomato diseases, but in some years they are also active in field plantings. Many Late Blight and Early Blight fungicides will not be effective against these diseases. However, by looking at FRAC codes (modes of action) we can parse out those that cut across pathogens, particularly when there are multiple modes of action within a single product.



We've seen far greater losses to Early Blight than Late Blight this season. Remember these stakes will have overwintering spores. Photo: J. Reid, CCE CVP

Azoxystrobin, the active ingredient in Quadris, is reported as ineffective in some Early Blight strains due to pathogen resistance. However, tomato Powdery Mildew can still be controlled with this material. A product such as Tanos, combines the FRAC group 11 with FRAC group 27 and would provide both Late Blight and Powdery Mildew control. Rotation to a material such as Revus Top, gives us a label for Leaf Mold, while adding two different FRAC codes (3 and 40), also picking up Early and Late Blight. This simplified late season program gives us a short PHI (0 days for Revus and 3 for Tanos), and works for 'non-restricted' growers (those without a pesticide license). We predicate this approach on protectant use such as chlorothalonil and copper prior to the presence of disease.

Identifying the diseases and knowing a bit about their life cycle can help with longer term management decisions. For example, Early Blight and Leaf Mold will overwinter in our climate on crop residue. New stakes and new soil are the best management tools for Early Blight and Leaf Mold. Late Blight and Powdery Mildew need a living host, so winter time is our friend here. Allow greenhouses to 'freeze-out' and do not overwinter crops.

Plant resistance is increasingly important for growers. Unfortunately, we do not have a single commercial variety that solves all these problems, although there are options for Late Blight (Mtn. Merit, Plum Regal), Early Blight (Iron Lady, Mtn Magic) and Leaf Mold (Primo Red, Red Deuce).

Need help identifying which diseases are present in your tomatoes? Give us a call!



Powdery Mildew of tomato is similar in appearance to cucurbit Powdery Mildew; white sporulation on both upper and lower leaf surfaces. Photo: J. Reid, CCE CVP



The upper surface of tomato leaves infected with Leaf Mold will exhibit yellow spots, about 1/4" across. The lower surface will have brown spots under these spots. Photo: Judson Reid, CCE Cornell Vegetable Program ●

Weed ID: Purple Amaranth

Lynn Sosnoskie, Weed Scientist, Cornell University

This summer, a few calls have come in to identify an unusual and relatively uncommon weed, *Amaranthus blitum* (sometimes listed as *Amaranthus lividus*), often referred to as purple or livid amaranth. A tropical annual in the pigweed family (Amaranthaceae), this summer germinating species is introduced in North America. The [USDA PLANTS database](https://plants.usda.gov) (<https://plants.usda.gov>) documents its occurrence in 23 US states (mainly in the Mid-South, Southeast, and Northeast), three Canadian provinces, and Puerto Rico. Historical records from the Herbarium of the L.H. Bailey Hortorium (Cornell University) document the occurrence of plants in and around the New York City and Long Island, in Central New York (Madison County), and in the North Country (St. Lawrence County).

The growth habit of the plant is prostrate to slightly upright. The most distinguishing feature of the species is its leaf, which has a wedge-shaped base and a deeply notched tip that can contain a single, stiff leaf hair. Stems are green to whitish in color and can have many branches. Purple amaranth can set seeds from just one plant. Inconspicuous flowers are held in terminal clusters at shoot tips and in leaf axils at the base of the leaves. Flowering occurs between July and October. Seeds are small (approximately 1 mm in width), black, shiny, and smooth. The species should not be confused with prostrate pigweed (*Amaranthus blitoides*), which also has a low-growing habit, but which has red stems, glossy and spoon-shaped leaves, and flowers that are only found in the leaf axils. The International Survey of Herbicide Resistant Weeds (www.weedscience.org) documents a report of resistance to imazethapyr, the active ingredient in Pursuit, (WSSA Group 2, ALS-inhibiting herbicide) in New Jersey in 1993. A [recent online article](#) from Michigan State University reports that a field-collected population from Michigan is resistant to PS II-inhibiting herbicides like prometryn and linuron (WSSA Groups 5 and 7). Resistant biotypes have also been identified in France, Malaysia and Switzerland.



Purple amaranth produces flowers in the axils of leaves and at the base of branches. Photo: L. Sosnoskie, Cornell



The long terminal flower cluster of purple amaranth. Photo: L. Sosnoskie



Purple amaranth has a distinctive, deeply notched leaf tip that contains a stiff hair. Photo: L. Sosnoskie, Cornell



A highly branched, semi-prostrate mature purple amaranth plant (background photo). Aim to control purple amaranth plants at or before they get to this growth stage (inset photo). Photos: L. Sosnoskie, Cornell ●

NY Sweet Corn Trap Network Report, 9/15/2020

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

Statewide, 23 sites reported this week. Only one of the sites had European corn borer (ECB)-E and no site had ECB-Z. All twenty-three sites reported corn earworm (CEW) with all high enough to be on a 3, 4, or 5 day spray interval (see table below). Fall armyworm (FAW) was caught at seventeen sites and Western bean cutworm (WBC) was caught at three sites. The hybrid ECB moth was not caught at any of the five reporting sites. Though CEW and FAW trap catch were still high at several sites this week, the average moths caught per week is beginning to drop.

Average Corn Earworm Catch			Days Between Sprays
Per Day	Per Five Days	Per Week	
<0.2	<1.0	<1.4	No spray (for CEW)
0.2-0.5	1.0-2.5	1.4-3.5	6 days
0.5-1.0	2.5-5.0	3.5-7.0	5 days
1-13	5-65	7-91	4 days
over 13	over 65	over 91	3 days

Add one day to the recommended spray interval if daily maximum temperatures are less than 80°F for the previous 2-3 days.

WNY Pheromone Trap Catches: September 15, 2020

Location	ECB-E	ECB-Z	ECB Hybrid	CEW	FAW	WBC
Batavia (Genesee)	NA	NA	NA	NA	NA	NA
Bellona (Yates)	0	0	0	16	58	0
Brockport (Monroe)	0	0	NA	14	3	0
Eden (Erie)	NA	NA	NA	NA	NA	NA
Farmington (Ontario)	0	0	0	13	7	0
Geneva (Ontario)	0	0	NA	214	20	0
Hamlin (Monroe)	0	0	NA	5	7	4
Kennedy (Chautauqua)	NA	NA	NA	NA	NA	NA
Leroy (Genesee)	0	0	NA	63	180	0
Lyndonville (Orleans)	0	0	NA	31	21	1
Oswego (Oswego)	0	0	NA	28	0	0
Panama (Chautauqua)	0	0	NA	5	0	0
Penn Yan (Yates)	0	0	NA	34	7	NA
Portville (Cattaraugus)	NA	NA	NA	NA	NA	NA
Ransomville (Niagara)	1	0	NA	40	26	0
Seneca Castle (Ontario)	0	0	NA	25	33	0
Williamson (Wayne)	NA	NA	NA	NA	NA	NA

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

More Food Safety Attention Needed for Greens

Robert Hadad, Cornell Cooperative Extension, Cornell Vegetable Program

After several seasons of E.coli contaminated lettuce coming out of the Southwest, more attention is being paid by the leafy greens industry. Romaine lettuce has had several years of problems that have caused recalls from coast to coast. What do the problems in the Southwest have to do with NY growers? Seeing that leafy greens are a highly susceptible crop to contamination, precautionary lessons can be learned.

Investigations into the outbreaks have looked at many possibilities. Handling and packing, distribution centers, irrigation water, proximity to livestock feeding operations are some of potential problems. E coli was found in irrigation canals during part of the season. Blowing dust from cattle areas could have also carried the bacterium onto the crop right before harvest.

The take home message our growers should be taking seriously is with assessment of risks. Assessing risks prior to planting, during the season, and especially right before harvest can factor in mitigating a contamination event. Like scouting, food safety assessments look for potential problems based on field history. What affects the land can come from external sources like a neighboring farm's operational practices such as manure application, runoff from fields, or contamination of shared water sources. The weather plays into this too through wind and rain depending on dry or wet years.

If there is potential for problems to occur then

planning is needed to reduce the possible spread of contamination on a susceptible crop. Plant greens away from problem areas. Plant greens during the time of year when a problem does not usually happen. Be on lookout for signs of imminent problems. Train workers to be on the lookout as well. Testing surface water sources if assessment identifies potential risk from outside sources.

There may be times when a problem occurs that is totally out of the norm. Water source gets contaminated from animals not usually around the farm. Cattle from up the road breaks loose and wanders into your fields. A neighboring farm applies dried manure with a spreader on a windy day upwind from your fields. These instances can all cause contamination to your greens. A tractor-pulled manure spreader can toss a lot of material into the air. If the manure is dry and dusty, winds can carry the particles and E. coli a long way in the wind.

Contamination can also occur post-harvest in the wash/pack facility. Birds, rodents, domestic animals can initialize or spread contamination. In the wash/pack facility, a lot of produce coming in gets condensed into a smaller space where contamination can spread widely through the greens. Wash water, unwashed hands, and contaminated tools or other food contact surfaces can be contributing factors.

What do you do about it if contamination does occur? Hopefully you have attended a food safety training to help with the knowledge base on practices. Making field and crop assessments a regular tool along with disease, insect, and wildlife scouting. Water testing may become needed more frequently. Well-trained workers are a great food safety resource. Many sets of eyes can help identify problems even before they happen. Thorough harvest and post-harvest hygiene and sanitization is also critical.

To learn more about assessing crop production and other food safety practices, contact Robert Hadad, rg26@cornell.edu or 585-739-4065. Watch for upcoming online wash/pack educational trainings this fall.

GENERAL

Cantaloupes want sweaters. Add in some peppers in blankets. Eggplants with cocoa in Catt County. Summer squash near a fire. I'd draw that idea out in a cartoon but you'd have no idea I was trying to say, "Wow it got cold in places!" - EB

BEETS

I scouted six large conventional processing table beet fields on Tuesday this week and all fields had 70 to 95 percent of leaves with at least one *Cercospora* lesion. However, the severity of the disease (percent of leaf area covered) was low to moderate at this time. These are late planted fields and have had two applications of Tilt fungicide to date. Tilt fungicide is mostly a protectant, working to prevent new infections, but it does have a short window of curative activity as well. The *Cercospora* forecast for new infections is low this week, but was followed a moderate to severe forecast over the past weekend in some locations. Beets that are going to be in the field for several more weeks may need continued protection. Aphids were found feeding on the leaves and stems in one field. In most cases, natural enemies will take care of the aphids and an insecticide will not be needed. However, it is a good idea to keep a watch on the field. - JK



Aphids feeding on stems of table beets. Photo: J. Kikkert

CARROTS

Continue to scout for leaf spot diseases. The biggest leaf disease concern for late season is Alternaria leaf blight because the disease can blow up quickly. *Alternaria* first appears as dark brown to black irregular spots on the margins of the leaflets. Lesions on the petioles and stems are dark brown and girdle the stems, killing them. As the disease progresses, entire leaflets may shrivel and die. Lesions are more prevalent on older foliage. Cercospora leaf spot may also be present, although it is more prevalent in hot and humid weather. *Cercospora* lesions are small, circular, tan or gray spots with a dead center which appear along the leaf margins, causing them to curl. The *Cercospora* fungus attacks younger leaves. Bacterial lesions are small yellow areas on the leaflets with brown, dry centers which are often surrounded by a yellow halo. While sprays with Bravo fungicide (group M5) will control both Alternaria and Cercospora, rotation with a fungicide with a different mode of action is advisable for resistance management. Quadris (group 11) or Quadris Opti (group 11 + M5) control both fungi and also have a 0 day PHI. There are several other fungicides labeled for carrot and outlined in the 2020 Cornell guidelines. Choices should be based on what you are trying to control, cost, and PHI. - JK

COLE CROPS

A little more *Alternaria* every time I look around. Nothing getting out of hand, which is quite encouraging. So far not seeing a spike in cabbage aphids, though I fully expect them to begin showing up, particularly a concern in sprouts. White mold isn't uncommon, and there's nothing to be done at this point but to make a record of where it is occurring. - EB

CUCURBITS

Late aphids in most cases probably won't warrant treatment unless 1) you're quite a ways out from harvest 2) pressure is very high, and 3) your vines aren't already on the verge of going down due to powdery or chill injury. The larger problem is probably these nights in the 40's (cue sad trombone noise).

DM resistant cukes (especially pickles) are doing a nice job holding up under sustained disease pressure.

Fruit rots for everyone! You get fusarium! And you get bacterial rot! And you get Anthracnose! And you get Pcap! And you get disgusting in three different ways! Fruit rot for everyone – BOOOOOO

In all seriousness though, these diseases needed to be prevented before the crop got to a mature stage. They are wide spread geographically, which is unsurprising in our predictably wet and dewy late summers. It is wise to treat vine crops with a preventative application of protectant fungicides mixed with copper. The bacterial fruit rot in particular seems to be a revival of the foliar *Xanthomonas* bacterial leaf spot outbreak experienced widely in July – it moved into the fruit as it developed and now is causing losses in marketability. - EB

EGGPLANT

Know what really impressed me lately? Bacterial soft rot of eggplant. It turns fruit into a giant sac of purple and yellow foulness, just solid enough to grasp at the top but completely sloshy underneath, dripping a thickened brown juice of bacterial funk. One of these would be way more effective at driving folks away than throwing rotten tomatoes. - EB

continued on next page

PEPPERS

Did Peter Piper pick a peck of putrid peppers? Likely not, they probably slimed through his fingers. Bacterial soft rot will do that to you. Infected fruit first developed collapsed, water soaked, brownish gray soft spots which expand to large regions before the fruit slough off the plant. Typically, the worse cases of bacterial soft rot in pepper follow some other form of mechanical injury, like a corn borer infestation or hail damage. Bacterial soft rot can go after peppers without obvious wounding, especially once it has begun in the patch and if it is driven around by splashing rains. Picking off rotting fruit before they self-remove prevents them from oozing onto other nearby fruit. Copper is ineffective once a fruit is already infected. The goal of any copper applications would solely be to attempt to protect remaining healthy fruit. At this point in the season, it is probably better to just call it quits if you have a hefty case of bacterial soft rot. -EB

POTATOES

This week, Arkport, Baldwinsville, Bergen, Ceres, Elba, Farmington, Fulton, Lyndonville, Medina, Niagara Falls, Penn Yan, Rochester, Versailles, and Wellsville passed the 30 Blight Unit (BU) threshold for triggering a late blight spray through the forecast period 9/18/20. It is important to continue to protect vines until there is no green tissue left, especially in fields where crops are intended for long term storage. The chart assumes a spray date of September 9, and an application of chlorothalonil. Because weather conditions can vary depending on topography and altitude, the recent disease information and disease forecasts will be most accurate very close to the weather station used. For locations that are not close to a weather station, forecast information should only be used as a general indication of how favorable weather has been for late blight. Forecast BUs are subject to changes as the weather

forecast changes, so check forecasting tools regularly to see if disease forecasts have changed. Information for other weather stations can be found at: <http://newa.cornell.edu/index.php?page=potato-diseases>. On a national level, there was one new report of late blight in North Carolina in the past 2 weeks on potatoes, adding to past confirmations in FL, AL, NC, WI, NY, and British Columbia and Ontario, Canada. All pathogens tested have been the US-23 clonal lineage. In NYS, Chautauqua County continues to be the only county with confirmed late blight. **If you find or suspect you have late blight on your farm, please contact a CVP specialist.** - ML and JG

SNAP BEANS

Saw some epic white mold in fresh market snap beans (both mechanical large acreage and hand-harvest fields) lately in a couple different counties. Nothing to be done for that now, but certainly something to make note of and plan to manage in subsequent years. White mold needs to be prevented during bloom. Some research suggests that the repeated annual use of Contans, which is a beneficial fungus that attacks white mold overwintering structures, can reduce the severity of white mold in a field after a few years. Contans is easy to apply biofungicide that should go out in the fall after the crop has been worked in and while temperatures are going to remain mild, above 50 degrees. Contans needs to be shallowly worked in after application by harrowing or rain. - EB

SWEET CORN

Many fresh market producers are done or finishing up with sweet corn. Late producers have had to contend with tremendous CEW pressure the last two weeks, which helps make the case for selecting varieties carrying the vip3a Bt protein for September timed harvests. - EB

TOMATOES

Looks like end of summer out there. Remaining green fruit are becoming slow to ripen, especially as night temperatures dip. - EB

New Late Blight Risk Chart, 9/15/20

Location	Blight Units ¹ 9/09-9/15	Blight Units ² 9/16-9/18	Location	Blight Units ¹ 9/09-9/15	Blight Units ² 9/16-9/18
Albion	17	7	Hammondsport	13	5
Arkport	23	7	Knowlesville	18	6
Baldwinsville	33	6	Lyndonville	21	9
Bergen	21	10	Medina	31	6
Buffalo	21	6	Niagara Falls	33	6
Burt	15	6	Penn Yan	30	7
Ceres	31	10	Rochester	27	11
Elba	26	9	Sodus	NA	NA
Fairville	16	10	Versailles	21	12
Farmington	23	11	Wellsville	43	9
Fulton	34	7	Williamson	15	8
Geneva	18	10			

¹ Past week Simcast Blight Units (BU)

² Three-day predicted Simcast Blight Units (BU)

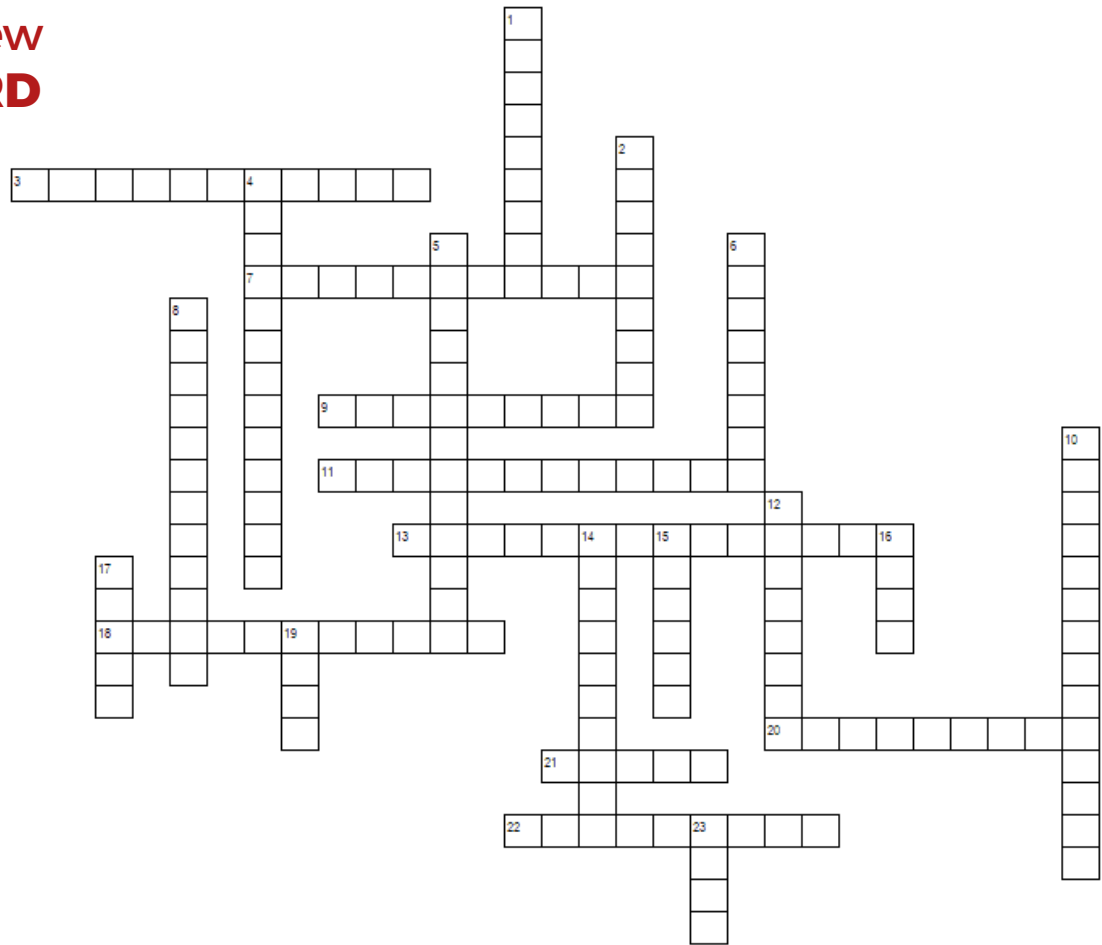
Season Review CROSSWORD PUZZLE

By Caitlin Tucker

Is there anything more satisfying than filling out a crossword puzzle without having to look at the answers? I wouldn't know. I always have to take a peek at the obscure baseball, movie, and actor references. Now here's a crossword I could solve, especially if I've been keeping up with VegEdge. So, sit back, enjoy a cup of coffee, and show yourself just how much vegetable knowledge you've cultivated over the last year!

Answers can be found on page 4, but you won't need them, will you?

(NOTE: Online readers will need to print this page to complete the puzzle.)



ACROSS

3. Microscopic nematode that feeds on the roots and bulb tissue of garlic. (two words)
7. FRAC 7 fungicide resistance has developed quickly in _____ leaf blight of onion.
9. This insect can cause feeding damage on sweet corn late in the season. (two words)
11. These larvae curl into a characteristic C-shape when disturbed. (two words)
13. _____ have provided excellent control of Colorado Potato Beetle, but are starting to lose their efficacy due to resistance.
18. The egg masses of this cutworm pest of sweet corn will turn purple ~24 hours before egg hatch. (two words)
20. White mold overwinters in the soil in these hard, black structures.
21. Cole crops need higher amounts of this nutrient compared to many other vegetables.
22. Allium _____ is an invasive pest that's becoming established in ENY and Long Island. It leaves oviposition scars in lines on allium leaves.

DOWN

1. Inner leaf collapse and die-back which may appear "greasy" and/or water-soaked is a foliar symptom of _____ disease of onion.
2. The predatory _____ is a 'broad spectrum' aphid biocontrol option as it preys on over 60 species of aphids. (two words)
4. This disorder is most often caused by infrequent watering rather than low levels of calcium in the soil. (three words)
5. Bacteria that are associated with legumes and fix atmospheric nitrogen.
6. Entomopathogenic nematodes may control this pest of root crops.
8. Tomato _____ Fruit Virus is a new virus all tomato growers should know about. (two words)
10. A great tool for cleaning up farm equipment, tools, and harvest bins but should only be used outdoors for food safety reasons. (two words)
12. _____ leaf blight causes silvery spots or "halo" lesions are an initial symptom of this onion disease
14. _____ leaf spot is the most important disease that affects table beets in NYS.
15. This insect pest causes silvery streaking on onion leaves.
16. During a cloudy Spring, _____ injury can be common on young greenhouse transplants.
17. Cucurbit _____ mildew should be managed by routine scouting, protectant fungicides and planting resistant varieties.
19. Pay attention to the _____, or sub-populations of plant diseases when buying seeds.
23. Yellow interveinal discoloration on new growth is a symptom of _____ deficiency in tomatoes.

Weather Charts

John Gibbons, CCE Cornell Vegetable Program

WEEKLY WEATHER SUMMARY: 9/08/20 - 9/14/2020

Location**	Rainfall (inch)		Temperature (°F)	
	Week	Month Sept.	Max	Min
Albion	1.06	1.57	78	45
Arkport	0.24	0.82	88	40
Bergen	0.23	0.61	82	38
Brocton	0.64	1.11	83	46
Buffalo*	0.61	1.26	85	48
Burt	1.32	1.65	76	42
Ceres	0.30	0.86	86	40
Elba	0.50	0.85	78	41
Fairville	0.39	0.62	82	38
Farmington	0.27	0.47	86	38
Fulton*	0.37	1.11	83	43
Geneva	0.26	0.30	86	43
Hammondsport	0.19	0.55	88	43
Hanover	0.45	0.98	80	44
Lodi	0.12	0.25	88	44
Niagara Falls*	0.57	0.57	86	46
Penn Yan*	0.09	0.14	88	41
Rochester*	0.25	0.63	79	42
Sodus	0.33	0.64	83	40
South Bristol	0.37	0.79	84	43
Varick	0.35	0.40	88	46
Versailles	0.45	1.24	85	42
Williamson	0.28	0.80	78	40

ACCUMULATED GROWING DEGREE DAYS (AGDD)

BASE 50°F: APRIL 1 - SEPTEMBER 14, 2020

Location**	2020	2019	2018
Albion	2489	2228	2660
Arkport	2171	1985	2553
Bergen	2426	2140	2531
Brocton	2413	2196	NA
Buffalo*	2638	2285	2744
Burt	2340	2064	2484
Ceres	2104	2066	2342
Elba	2302	2041	2502
Fairville	2373	2050	2467
Farmington	2385	2074	2510
Fulton*	2367	2069	2550
Geneva	2477	2192	2566
Hammondsport	2400	2076	2450
Hanover	2386	2179	NA
Lodi	2541	2234	2613
Niagara Falls*	2485	2173	2770
Penn Yan*	2572	2292	2659
Rochester*	2470	2369	2824
Sodus	NA	2005	2445
South Bristol	2344	2053	2453
Varick	2609	2308	2657
Versailles	2330	2140	2555
Williamson	2328	1997	2417

*Airport stations

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

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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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