Cornell Cooperative Extension
Eastern NY Commercial Horticulture Program

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Vegetable News

Late Blight Update

I thought it might be a good time to update you on the Late Blight that was found in tomatoes from a greenhouse in Onondaga County earlier this year. First, let me report that we have NOT found late blight anywhere in our 17 county region in Eastern New York to date. The note below is from our Cornell Vegetable Pathologist Chris Smart:

"As you know, Kevin Myers (in Bill Fry's lab) identified a new genotype of *Phytophthora infestans* from tomato plants in Onondaga County NY earlier this summer. This same genotype has now been identified from an infected tomato field in Tioga County NY. We do not yet know if transplants from Onondaga County were moved to Tioga County. Based on this second finding, we are giving the new genotype the clonal lineage designation US-25. Preliminary studies found US-25 to be mating type A2 (US-23, which has been the predominant strain in NY for the past 6 years, is mating type A1), and US-25 is insensitive to mefenoxam at 10ppm using a leaf disk assay (this was the highest level of mefenoxam that was used in the preliminary study) *(Editor's note: This means the isolate is resistant to Ridomil fungicides).* In in-vitro assays US-25 infected both potato and tomato. Because mefenoxam does not appear to be effective against US-25, but IS effective against US -23, it is very important that you have strains genotyped if you see late blight in the field."

So if you suspect late blight in your tomatoes or potatoes, please contact your local CCE ENYCHP specialist for diagnosis!

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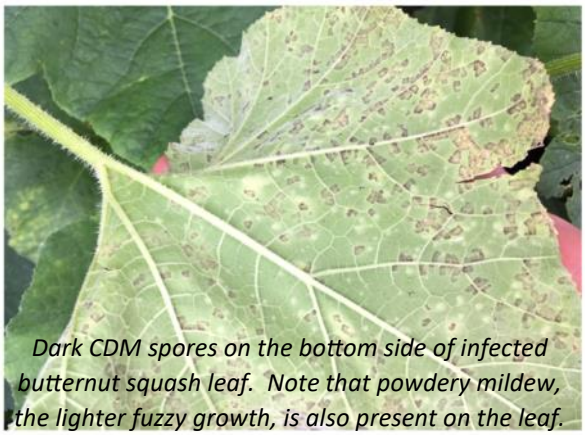
Cucurbit Downy Mildew Update

On Tuesday, August 20th, cucurbit downy mildew (CDM) was confirmed on butternut squash in Orange County. This is the first confirmation of CDM in the region on a cucurbit crop other than cucumbers. For more information on management options, please see Chuck Bornt's article at https://enych.cce.cornell.edu/submission.php?id=593&crumb=pests|pests.

The current forecast for the risk of CDM spread in the region is available at http://cdm.ipmpipe.org/current-forecast .

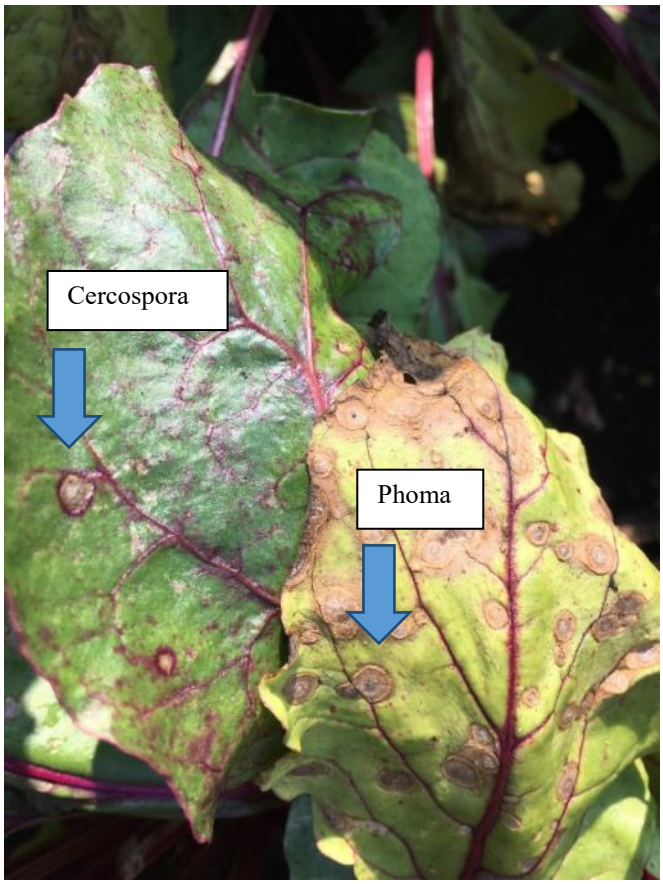


Dark CDM spores on the bottom side of infected butternut squash leaf. Note that powdery mildew, the lighter fuzzy growth, is also present on the leaf.

Organic and Conventional Management of Cercospora in Beets

Crystal Stewart, CCE ENYCHP

Growers throughout Eastern NY are experiencing quickly escalating levels of Cercospora leaf spot in table beets. Often growers think of leaf spot as unavoidable, especially in red beets, but there have been some advances in available controls and in resistant varieties to combat this disease.



First, let's note that **there are actually a couple of foliar diseases which affect beets**. Cercospora leaf spot has a light tan lesion with a red ring around the outside. Another less common, but also potentially damaging, disease affecting beets is phoma, which lacks the red ring around the lesions and has concentric rings. Both are illustrated in the image shown at the right (photo credit Ethan Grundberg).

Second, let's note that in recent trials it has been demonstrated that these **foliar diseases may not affect total yield of marketable roots**. However, the lesions make mechanical cultivation difficult and make marketing bunches with tops on challenging. If you need the tops, management is a priority. If you don't, it's probably not worth controlling these foliar diseases.

Third, remember that **any control program is going to work best if proper rotations are employed**. Cercospora can live in the soil for 22 months, so a minimum of two years rotation is recommended (along with control of susceptible weeds—lambsquarter and pigweed).

These points noted, let's focus on Cercospora management for today. We are fortunate to have a wonderful subterranean crops specialist at Cornell, Dr. Sarah Pethybridge. She recently completed efficacy trials on organic and conventional products for Cercospora management, so we have research-based information about which recent chemical and biological controls work.

For organic control of Cercospora, the most effective combination of products is copper octanoate + *Bacillus amyloliquefaciens* strain D747. Note, this is using both products tank mixed—the two used separately as a rotation were not as effective. The trial used **Cueva and Double Nickel**, but other formulations of copper and *B. amyloliquefaciens* may also be effective. For conventional control of Cercospora, it is first important to note that strobilurins are no longer effective. The most effective controls now are Benzovindiflupyr + difenoconazole (**Aprovia Top**) or propiconazole (**Tilt**).

If you are not planning to do any chemical or biological control for Cercospora but value the beet leaves, you might consider looking into some different beet varieties. As a general rule, the lighter a beet is, the more Cercospora resistance is present. Chioggia, yellow and white beets all have nicer foliage than most red beets. Beyond that, look for varietal resistance. Old favorites like Red Ace and Ruby Queen are still largely unrivaled for root yield, but there is improvement in foliage with maintenance of nice roots. Look for a few new varieties and trial them on your farm this coming year.

Visit our Website: https://enych.cce.cornell.edu/
ENYCHP Facebook: https://www.facebook.com/CCEENYCHP/

Ozone Alert!

Teresa Rusinek, CCE ENYCHP

Ozone is beneficial when it forms a blanket in the upper layer of the atmosphere and shields the Earth's surface from the damaging ultraviolet radiation emitted by the sun. But ozone that hangs around in the troposphere, the layer of the atmosphere closest to earth's surface, is associated with various respiratory illnesses, including asthma. Surface ozone also affects plants by impairing their ability to produce and store food. This inhibits plant growth and health, which in turn, weakens the ability of plants to survive pests and extreme weather. Ozone causes more damage to plants than all other air pollutants combined.

Ozone is formed when other pollutants in the lower atmosphere, such as nitrogen oxides and volatile organic compound gases, react with sunlight. Sources for these pollutants include motor vehicles, power plants, factories, chemical solvents, combustion products from various fuels, and consumer products. Surprisingly, ozone concentrations in rural areas are usually higher than in urban areas. This is because pollutants generated in urban areas are often transported long distances by regional weather patterns.

Some plants are especially sensitive to ozone and will display symptoms when others seem unaffected. Summer squashes are the most susceptible to ozone damage. Tomatoes, potatoes, string beans, snap beans, dry beans, soybeans, alfalfa, beets, sun-flower, carrots, sweet corn, gourds, green peas and turnips are also highly sensitive to air pollution damage.

Ozone damage is common on hot days (more common when air is stagnant and humidity is high). Elevated ozone can cause a variety of symptoms in plants including: chlorosis (yellowing of leaf tissue due to a lack of chlorophyll); necrosis (death of plant tissue); flecking (tiny light-tan irregular spots less than 1mm diameter), stippling (small dark pigmented areas approximately 2-4 mm diameter), bronzing, and reddening. Ozone symptoms usually occur between the veins on the upper leaf surface of older and middle-aged leaves, but may also involve both leaf surfaces for some species. The type and severity of injury is dependent on several factors including duration and concentration of ozone exposure, weather conditions, and plant genetics. One or all of these symptoms can occur on some species under some conditions, and specific symptoms on one species can differ from symptoms on another. With continuing daily ozone exposure, classical symptoms (stippling, flecking, bronzing, and reddening) are gradually obscured by chlorosis and necrosis.

Diagnosis of ozone damage is difficult at best. It is almost impossible to tell if chlorosis or necrosis is caused by ozone or normal senescence (aging). Suspect ozone when symptoms occur after a storm front blows through or after an ozone or air quality alert has been issued. Plants that are in good health resist all type of injury better than weakened plants. Water during drought periods. Fertilize appropriately and avoid compaction.

Ozone injury on parsley observed last week in Dutchess County (pic above by T.Rusinek)

Ozone Injury on Norland Potato grown on Long Island in 2017, varieties differ in susceptibility. (pic above by M. McGrath)

Winter Squash Harvest

Chuck Bornt, CCE ENYCHP

Early Winter Squash Harvest Reminders: This summer's heat really has been pushing the maturity of various crops including winter squash and pumpkins across the region. With this thought in mind, I thought it was time to do the harvesting reminder to maintain the highest quality in these crops as you start to consider whether to harvest or not.

Maturity: How do I know if my squash is mature? Just because the vines are dead or going down does not necessarily mean the fruit are mature. In many cases when the vines die early, the fruit may not be mature and may not have developed the flavors and sugars that a mature fruit does – nor will it store as long. Likewise leaving a mature fruit in the field to long will also reduce the quality and storability of the fruit so getting it right can be tough!

Maturity in winter squash varies depending on the variety – for example, most butternut are mature when the green stripes normally found on the neck start to lighten or disappear and the skin becomes slightly darker in color and dull in appearance. Acorn, delicata, kabocha, buttercup, and hubbard will usually start to get a dark yellow orangey coloring on the bottom side of the fruit and the skin will become darker in color and again dull in appearance. Knowing if your squash is mature is the first step to be able to properly store and market high quality fruit.

Curing and harvesting:

- Handle squash as gently as possible to avoid bruising or cutting the skin. Wounds will allow soft rot bacteria and other disease to invade and reduce the storage life of your squash. Even if you don't see puncture marks, squash and pumpkins can both become bruised making the tissue more vulnerable to attack from disease organisms.
- Do not "drop" or "throw" squash in windrows or bins for the same reasons above.
- Avoid picking up squash that is wet with dews or recent rain. This increases the risk of pressure bruise and breakdown.
- If possible, try field curing your squash for a day or two by placing them in windrows to encourage the stem ends to dry up prior to putting them in bins. **However,** be very, very careful, especially with dark skinned squash as bright sunny days can really heat that squash too much and cause sunscald or over curing**. I would not recommend field curing this early in the season unless temperatures, with bright sun will only reach mid 70's**. The one squash that loses quality and storability when cured is acorn – place acorn directly in bins and move to a dry, well ventilated location to remove field heat. After several days they can be moved into more permanent storage facilities.
- If the weather is going to be warmer than the mid 70's or rainy for a couple days, place squash in bins or boxes and place squash in a warm, dry atmosphere (70 -80°F) and 80-90% humidity with good air movement (fans would be recommended) such as a well ventilated garage or barn if temperatures can be maintained. This process should take between 10 and 14 days.
- If using greenhouses or high tunnels with fans turned on would also work nicely if they are covered with a shade cloth – I would not put squash in these structures if it is going to be hot and sunny.
- When moving squash from the field to curing/storage facilities, please instruct your drivers (or remember yourself) to take their time! Driving down bumpy farm lanes makes squash shift in the bins, baskets, crates etc., and increases the chances of bruising and punctures

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- Many growers will remove the stem especially from butternut and acorn. This practice helps reduce puncturing that can happen in the bins but squash should definitely be cured for a week to ten days before going into storage.
- Be sure not to pile squash too high in the bins especially if they will be stacked on top of one another. Pressure bruise is another way to decrease squash quality and storage potential.
- DO NOT MOVE SQUASH DIRECTLY FROM THE FIELD TO A COOLER! There is usually too much field heat in the squash and moving it directly into a cold cooler will only promote condensation and lead to more rots and breakdowns. Move only good, cured squash into storage.
- After curing, move squash or pumpkins to a dry, well ventilated storage area. Store squash at 55-60°F with a relative humidity of 50-70%. Slowly bring the temperatures down over a couple of days. If humidity levels are lower than that, moisture is removed from the fruit resulting in "pithiness" or shriveling. Humidity higher than that results in conditions that favor decay organisms.
- If you cannot harvest all your squash at the same time, remember to maintain your fungicide program on squash not harvested yet. Be sure to follow the Re-entry and Pre-harvest intervals for the materials you are using!
- Try your product! That's right, cook a couple of squash before you start to harvest to see if they have developed the flavors that you would look for in a squash if you were buying it to eat! I see lots of product go out the door with no one actually tasting what it might taste like on the other end!

2018 Lettuce Variety Trial Planting Results

Natasha Field, CCE ENYCHP

This year's lettuce variety trial was conducted at Pleasant Valley Farm in Argyle, NY. It was planted on May 28th and harvested August 1st. The main goal of the trial was to evaluate romaine varieties to see which would perform well in hot summer conditions. With 17 days above 85 degrees, these varieties had plenty of opportunity to demonstrate their response to hot weather.

Standout Varieties: See the youtube video below

https://youtu.be/7tjxZG46dlo

Other Varieties Evaluated (See https://enych.cce.cornell.edu/submission.php?id=601&crumb=crops|crops|lettuce_/_leafy_greens|crop*17 for pictures)

- Aerostar – Good disease resistance, sweet taste but weird after taste. Odd texture, almost slippery. 0.35 lb head weight
- Annapolis – Good disease resistance, bland and bitter taste, soft texture. 0.14 lb head weight
- Auvona – Good disease resistance, bitter taste but good crunch. 0.79 lb head weight
- Brown Goldring – Very little disease resistance, all plants were bolting at time of harvest, bitter and weird taste, 0.39 lb head weight
- Bunyard Matchless – Little disease resistance, bad taste and very bitter. Most plants bolted. 0.32 lb head weight.
- Cimarron – Average disease resistance, around half of plants bolted. Not much taste. 0.56 lb head weight
- Coastal Star – Little disease resistance, around half of plants bolted. Weird and bitter taste. 0.69 lb head weight
- Dubiya Dapple Density – Good disease resistance, no real flavor but not bitter. 0.31 lb head weight
- Ezbruke – Good disease resistance, bland and weird taste. 0.22 lb head weight.

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- Freckles – Average disease resistance. Two of sixteen plants bolted. Taste was okay, it had good crunch. 0.58 lb head weight.
- Fusion – Average disease resistance. Okay taste. 0.69 lb head weight
- Green Towers – Average disease resistance. Bad flavor. 0.6 lb head weight
- Outredgeous – Average disease resistance. All plants bolted. Taste was bland and bitter. 0.28 lb head weight.
- Red Rosie – Average disease resistance. All plants bolted. Sweet taste despite bolting. This variety may benefit from an earlier harvest. 0.6 lb head weight.
- Salvius – Good disease resistance. Taste was just fine. 0.75 lb head weight
- Sparx – Little disease resistance. Taste was just fine. 0.83 lb head weight
- Thiruness – Good disease resistance. Odd, dry taste. 0.35 lb head weight.

ENYCHP Video of the Week: *Lettuce Trial Update*

Now Available on our YouTube channel!

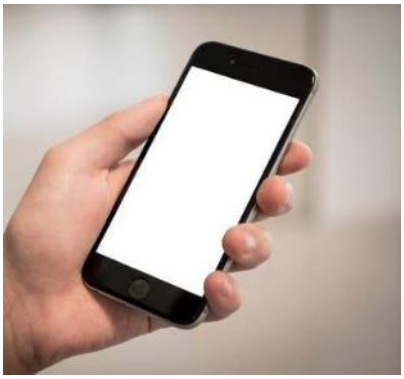
Late Season Purple Blotch Management on Leeks

Ethan Grundberg, CCE ENYCHP

Purple blotch is a foliar fungal disease caused by the pathogen *Alternaria porri.* Purple blotch lesions have started to appear in leek fields over the past few weeks since the pathogen thrives under warm (77°F to 85°F) weather with long periods of leaf wetness (minimum of 12 hours). This disease is opportunistic and typically colonizes already-damaged leaf tissue. As a result, lesions are most often found in plantings with heavy onion thrips feeding damage, herbicide injury, or other foliar diseases.

Though a number of different fungicides are labeled for use for management of purple blotch on leeks, field trials have found that Scala (pyrimethanil, FRAC group 9) at 18 oz/acre and Bravo (chlorothalonil, FRAC group M5) at 1.5 pts/acre are most effective. Scala has a 7 day pre-harvest interval (PHI) and Bravo has a 14 day PHI. Keep in mind that chlorothalonil products have special stipulations for PPE and worker safety during the extended 6.5 day REI to avoid eye irritation.

Little research has been done to evaluate the efficacy of OMRI-certified fungicides for purple blotch management. However, several *Bacillus subtilus* products, such as Cease and Serenade, are labeled for purple blotch suppression. Many copper formulations are also labeled, but take caution to avoid phytotoxicity; refer to Teresa Rusinek's article on copper sprays at https://enych.cce.cornell.edu/submission.php?id=585&crumb=pests%7Cpests for more information.



This season, CCE ENYCHP will be offering text updates straight to your phone. Our texts will get you the information you need in the fastest and most concise way possible! Only the most important crop alerts will be sent ("Late Blight found in N.Columbia County", for example), and you can choose to receive updates on whichever commodities you wish-

Vegetables, Berries, Grapes, or Ag. Business.

CLICK HERE TO SIGN UP FOR OUR CCE ENYCHP TEXT ALERTS!

Wait, Put Down That Lime!

Amy Ivy, CCE ENYCHP

On a farm visit this week a grower asked me to do a quick soil pH test, and it's a good thing he did. He was about to apply lime, just assuming his soil must need it. My field test using the Cornell pH test kit showed his pH was a full point higher than he needed so what he really needed to do was add sulfur to lower it, not lime to raise it.

Getting your pH in the ideal range is one of the very best things you can do for your crop and soil health, and the only way to know your precise level is to test. The Agro-One soil lab in Ithaca includes pH in their basic $12 soil test for vegetables which is the most precise method. You can get your own kit like I have for in-field tests to give you a close idea of your pH. The devices that give a quick read using a soil probe are unreliable.

Once you know your pH reading and your soil type, only then you can calculate how much lime or sulfur, if any, is needed to bring that field into the ideal range.

If you'd like to have your own Cornell soil pH kit, here's the link to the order form: https://cnal.cals.cornell.edu/2017/01/11/ph-kits/ If you need some coaching in how to use it or interpret the results, contact any of us on the team.

What's Up with Hemp Applications?

Maire Ullrich, CCE ENYCHP

Many of you may have heard that NYSDAM is not accepting applications for CBD production. This is true. They have a "pause" on CBD permit applications for producers, affiliated growers, and processors. However, they are still accepting applications for grain/fiber production but it would be in your best interest to wait until the fall so that your first permit year is 2019. A permit is valid for 3 years.

A very short explanation is that the "pause" is due to the relative uncertainty of the Farm Bill and the place for CBD in the Farm Bill. There are currently two drafts of the Farm Bill, currently, one in the House and one in the Senate, and they are quite different with regard to hemp regulation. Those counseling me on the process do not expect a version to be passed until well after November elections and maybe into January or February. Since the current Farm Bill expires September 30th, it is expected there will be a continuing resolution to keep things "as is" for the legal and fiscal activities relating to the 2014 Farm Bill until a new version is passed. Therefore, it is difficult for New York to be able to plan for what their role may be in permitting the legal production of industrial hemp until the Farm Bill is finalized.

However, if you are interested in grain of fiber production or processing, you can start doing your research as to what the application will entail here:

https://www.agriculture.ny.gov/PI/PIHome.html

Farm Worker Housing Funding Deadline August 27th

Quick reminder that the application period for USDA's Rural Housing Development program is coming up very soon. This is a great opportunity to secure low interest loans and flexible terms on farm worker housing.

You can read more about this from Western Grower's Association and from an earlier Ag Workforce Journal post on Cornell Ag Workforce Development.

Corn Pest Trap Counts

County	CEW	ECB-Z	ECB-E	FAW	WBC
Albany	8	1	0	0	10
Clinton 1	0	0	2	0	7
Clinton 2	0	0	3	0	3
Columbia	5	0	0	0	3
Dutchess	1	1	0	x	x
Greene	2	0	2	0	5
Orange	2	0	0	31	5
Rensselaer 1	0	0	0	0	0
Ulster 1	9	3	11	4	0
Ulster 2	5	2	0	x	2
Ulster 3	7	1	0	x	x
Ulster 4	15	0	0	x	2
Washington	0	0	0	0	0

20 Minute Ag Manager Webinars:

All webinars run from 12:00 until 12:30.

To register, go to https://tinyurl.com/y9gfqbmx. *Registering once gives you access to the series.*

August: Insurance

August 7—Crop Insurance 101

August 14—Crop Insurance for Diverse Farms

August 21—Flood Insurance and other Disaster Programs

Previous 20 Minute Ag. Manager sessions area now available on our ENYCHP YouTube—Learn the highlights in just 5 minutes!

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