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Extension

# Vegetable Notes

For Vegetable Farmers in Massachusetts since 1975



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*Good luck Katie!*

## CROP CONDITIONS

Back to school is finally here and it's starting to feel like fall, with cooler days and cold nights. The recent rains and heavy dews have meant a lot of spread of diseases like downy mildews and late blight. Don't worry, late blight is still only in far western NY and PA!

This week the Vegetable Program says goodbye to our dear friend Katie Campbell-Nelson. Katie and her partner have been fixing up an old farmhouse in the upper Hudson Valley of NY and it is finally move-in ready. Since taking the helm of the Vegetable Program in 2015, Katie has been a supportive and creative leader of our team and a fantastic resource for the region's farmers. We will miss her around the office, but she's not leaving our lives entirely—she will be working as the Northeast SARE Professional Development Coordinator, and so will continue to help us make Extension work for you. She can still be reached at [kcampbel@umass.edu](mailto:kcampbel@umass.edu) or 413-834-1090 if you are an Agricultural Service Provider looking for professional development resources. Good luck, Katie!

## PEST ALERTS

### **Beets/Chard:**

**Leafminer:** We have seen surprisingly low levels of beet and chard leafminer this year. Other New England states have reported the same. In places where it has been active this year, growers are seeing tunneling now. If you are seeing this pest in your crop, management is difficult after the eggs have hatched and larvae have entered the leaves. In small plantings, hand-pick infested leaves and squish larvae. Rotate spring beets and chard to fields far from infested fall plantings. A different leafmining fly is currently active in amaranth and continuing to lay eggs on large leaf varieties and microgreens in Worcester Co., MA.

### **Brassicas:**

**Brassica downy mildew** has been reported from growers in Maine. This disease usually appears in the fall, when weather turns cooler. The pathogen has been detected in seed lots and could potentially come into fields on seed, but it's not yet known if this is an important means of spread for this disease. Look for yellow spots on leaves with black or blue veins, and granular, white sporulation on the undersides of leaves. Oomycete-targeted fungicides like those used for cucurbit downy mildew or late blight can effectively control brassica downy mildew. Copper can be used on organic farms. For a complete list of labeled products see the [New England Vegetable Management Guide](#).

### **Cucurbits:**

**Black rot** was diagnosed on spaghetti squash this week in Hampshire Co., MA. Black rot symptoms vary based on the crop affected and the time of infection. On butternut, it causes distinct, concentric tan



*Brassica downy mildew. Photo: S.B. Scheufele*

rings that are hard and corky. On butternut and other winter squash, it can cause a soft, watery rot that develops black sporulation. The pathogen that causes black rot on squash fruit also infects cucurbit foliage; on foliage it is called gummy stem blight. Managing gummy stem blight is essential to controlling the fruit rot. Plow under infested fields after harvest and rotate out of cucurbits for at least 2 years.



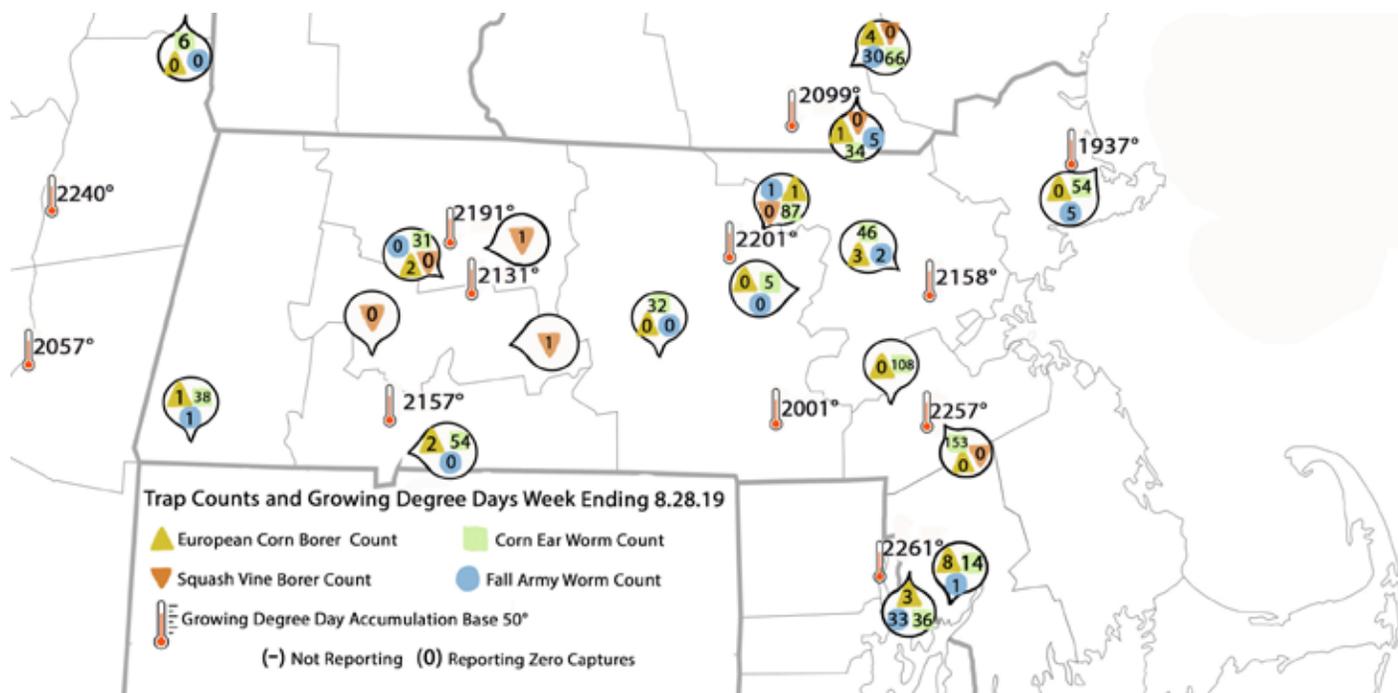
*Black rot on butternut squash.  
Photo: T.A. Zitter*

**Downy mildew** was diagnosed on muskmelon in Rhode Island and on butternut squash in Massachusetts this week, and is spreading throughout New England on cucumbers. As the disease continues to spread to new fields and crops, continue to spray targeted downy mildew materials weekly for control. Infected cucumber plantings will likely start to go down quickly. Growers who planted resistant varieties in their late-season plantings will soon start seeing differences between resistant and susceptible varieties—for more information about downy mildew-resistant cucumber varieties, see the [March 15, 2019 issue of Vegetable Notes](#).

**Bacterial wilt** is hitting our cucurbit research plots again, about a week after we started seeing the 2<sup>nd</sup> generation of striped cucumber beetle (SCB) in the plots. SCB damage and the resulting bacterial wilt is often said to be most damaging to small cucurbit transplants but can definitely take down larger plants as well, and feeding damage to fruit can render them unmarketable. Managing the 1<sup>st</sup> generation of SCB will help reduce the numbers in the 2<sup>nd</sup> generation and protect later plantings. For chemical control recommendations, see the [article in the June 6, 2019 issue of Vegetable Notes](#).

**Powdery mildew** has taken over some untreated fields of cucurbits and is continuing to spread. Ideal chemical control of this disease involves spraying weekly—both preventative materials before the disease has been reported and then targeted materials once the disease is established in the area. Powdery mildew can defoliate long-term crops like winter squash and melons, making fruit susceptible to sunscald and secondary rot pathogens, and can also affect eating quality in squash and melons, and weaken pumpkin handles. A focused spray program can make a big difference. While it's likely too late to manage this disease this season, now is a good time to take note of the state of your winter squash fields and think about powdery mildew materials for next year. For current recommendations for managing cucurbit powdery mildew, see [Managing Cucurbit Powdery Mildew Successfully in 2019 in the Northeast Region of the US](#) from Meg McGrath.

**Tomato: Late blight** is moving around western NY, where it has been present for several weeks, and spreading throughout PA as well, but has not been reported closer to MA in the last week.



## Sweet Corn:

**Corn leaf aphids:** High numbers of corn leaf aphid have been reported on leaves and tassels throughout New England and New York. Treatment is not usually warranted for aphids in corn, but if populations explode, they can interfere with pollen shed and stunt plants. Aphid honeydew can also promote the development of sooty mold on ears, rendering them unmarketable. Monitor for aphids while scouting whorl or pre-tassel stage corn for ECB or FAW. Treatment threshold for pre-tasseling corn is 50% infestation or 25% of plants with heavy infestation. Sprays applied before 50% of the tassels emerge are more effective than later sprays. For labeled materials, see the [New England Vegetable Management Guide](#).

**Corn earworm** trap captures have increased from last week but most locations in MA remain on a 3-day spray schedule. Two locations in Norfolk Co. are on a 3-day schedule based on this week's trap captures. Continue spraying until 5-7 days before final harvest or until the last silk is completely dry and brown. CEW sprays should be controlling any [fall armyworm](#) and/or [European corn borer](#) that is present in the field now. FAW trap captures have fallen in western and central MA this week but some locations in eastern MA reported high numbers. European corn borer numbers continue to drop as the second flight comes to an end throughout the state.

Spray Intervals for corn earworm based on moth captures in <i>Heliothis</i> net traps.		
Moths/Night	Moths/Week	Spray Interval
0 - 0.2	0 - 1.4	no spray
0.2 - 0.5	1.4 - 3.5	6 days
0.5 - 1	3.5 - 7	5 days
1 - 13	7 - 91	4 days
Over 13	Over 91	3 days

## IDENTIFYING POTATO TUBER DISEASES

Potato harvest is underway for some early processing varieties and will be beginning soon for fresh eating, direct-market sales. There are many diseases that affect potato tubers, so as you begin to sort through your potato harvest this year, take a moment to check for disease symptoms. Proper identification will help you decide which tubers will store well and which should be sold as tablestock, and will give you a better idea of which soil-borne diseases are present in your fields, improving your future crop rotations.

**Common scab** (*Streptomyces* spp.) produces tan to dark brown, circular or irregular lesions, which are rough in texture. Scab may be superficial (russet scab), slightly raised (erumpent scab), or sunken (pitted scab). The type of lesion is dependent on potato cultivar, tuber maturity at infection, organic matter content of soil, strain of the pathogen, and the environment. Common scab is controlled or greatly suppressed at soil pH levels of 5.2 or lower, though a less common species of *Streptomyces* known as acid scab can survive down to 4.0.

**Early blight** (*Alternaria solani*) usually affects potato foliage but tuber infections can also occur. Tuber lesions are dark, sunken, and circular, and are often bordered by raised, purple to gray tissue. The underlying flesh is dry, leathery, and brown. Lesions can increase in size during storage, causing tubers to become shriveled.

**Fusarium dry rot** (*Fusarium* spp.) causes internal, light to dark brown or black dry rot of the potato tuber. The rot may develop at an injury site, such as a bruise or cut. The pathogen penetrates the tuber, often rotting out the center. Extensive rotting causes the tissue to shrink and collapse, usually leaving a dark sunken area on the outside of the tuber and internal cavities.

**Black dot** (*Colletotrichum coccodes*): On potato foliage, symptoms of black dot are nearly indistinguishable from early blight. On tubers, it produces tiny black sclerotia (fungal resting structures). Symptoms on tubers can be easily mistaken for silver scurf (see below).

**Silver scurf** (*Helminthosporium solani*) affects only tuber periderm (skin).



Early blight. Photo: S. Jensen



Dry rot caused by *Fusarium* spp.  
Photo: C. Averre

Lesions start at the stolon end of the tuber as small, pale brown spots which may be difficult to detect at harvest but will continue to develop in storage. In storage, lesions may darken and the skin may slough off. Many small circular lesions may coalesce to form large affected areas. Tubers may also dry out and become wrinkled due to excessive moisture loss in storage.

**Black scurf and Rhizoctonia canker** (*Rhizoctonia solani*): Black scurf is purely cosmetic and does not reduce yield, even in storage. Irregular, hard, black masses that develop on tuber surfaces are overwintering structures (sclerotia) of the fungus. Development of these sclerotia may be minimized by harvesting tubers soon after vine-kill and skin set. While the sclerotia themselves do not cause damage, they allow the pathogen to survive in the soil and serve as evidence of its presence. In cool, wet soils, *R. solani* can cause dark, sunken lesions on underground sprouts and stolons. These lesions can cut off the supply of nutrients and kill tubers, or can reduce the transfer of starches to the tubers, reducing their size. Cankers can also form on the tubers themselves, usually at the stolon or in lenticels. Tuber cankers vary greatly in size, from small and superficial to large, sunken, and necrotic.

**Pink Rot** (*Phytophthora erythroseptica*) and **Pythium Leak** (*Pythium* spp.): Pink rot infections start at the stolon end of tubers and result in rotten and discolored periderm with a clear delineation between healthy and diseased tissue. When exposed to air, tuber flesh turns pink and then brown-black. The *Pythium* species that cause leak infections invade tubers through harvest wounds and continue to develop in transit and storage. Infections result in internal, watery, gray or brown rot with well-defined red-brown lines delineating healthy and diseased tissue.

**Late Blight** (*Phytophthora infestans*) affects potato foliage and tubers. Foliar symptoms start with brown to black, water-soaked lesions on leaves and stems, which produce visible white sporulation at the lesion margins under humid conditions. Whole plants and fields may collapse rapidly. Tuber infection is initiated by sporangia from foliage being washed down into the soil and usually begins in wounds, eyes, or lenticels. Lesions are copper



*Black scurf caused by Rhizoctonia solani.*  
Photo: MI State Univ.



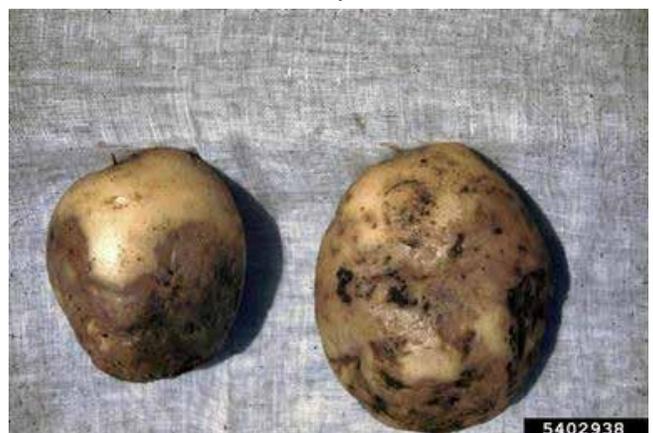
*Black scurf on red-skinned potatoes.* Photo: G. Holmes



*Pink rot caused by Phytophthora erythroseptica.*  
Photo: Univ. of Minnesota



*Necrotic ringspots on Yukon Gold potatoes caused by PVY.*  
Photo: potatovirus.org



*Late blight causing water-soaked spots on tubers.*  
Photo: R.W. Samson

brown, red or purplish and white sporulation may occur on tuber surfaces in storage or cull piles. Infected tubers are susceptible to infection by soft rot bacteria, which can turn entire bins of potatoes in storage into a smelly, rotten mass.

**Potato virus Y** can cause necrotic ringspots on tubers, depending on which strain of the virus is present, which potato variety is grown, and the time of infection. Affected tubers have roughened rings of darker brown or reddened skin. Necrosis beneath the rings may extend into the tuber flesh. Necrotic symptoms in tubers often increase after storage. Potato varieties vary in their susceptibility to PVY and the symptoms they exhibit on foliage and on tubers; Yukon Gold is particularly susceptible to tuber necrosis.

### Physiological Disorders

**Black heart** is caused by lack of oxygen during storage, which causes the tissue to die from the inside out and turn black. The condition is not reversible, but if you notice it quickly and correct your storage conditions you can prevent the whole crop from being affected.

**Brown center** and **hollow heart** are internal physiological disorders of potato that often occur together. Brown center is an area of dead pith cells that turn brown, while hollow heart is a star- or lens-shaped hollow area in the center of the tuber. These disorders make fresh-market tubers unattractive and can reduce repeat sales. Severe hollow heart negatively impacts the quality of chip-processing potatoes and can result in shipments not making grade. Both disorders are related to stress, and occur at a higher incidence when growing conditions abruptly change during the season. Brown center and hollow heart likely form during tuber initiation but could also form during tuber bulking. If the disorder occurs during the early part of the season, it most often begins as brown center that forms in the stem-end of the tuber, while late-forming hollow heart usually occurs near the bud-end with no brown center symptoms. Conditions such as soil temperatures below 56°F for 5 to 8 days, or available soil moisture above 80% initiate brown center formation. Incidence of brown center and hollow heart also increases with periods of stress caused by high or low soil moisture, especially if heavy rains occur suddenly after a dry spell. Large tubers are more prone to develop the disorder, so using closer spacing and avoiding skips in the row can reduce incidence of brown center and hollow heart. There are also differences in the susceptibility of potato varieties: ‘Atlantic’, a widely grown potato for chip processing, is relatively susceptible to both disorders. In ‘Russet Burbank’, susceptibility to both brown center and hollow heart is highest soon after tuber initiation when the tubers are small.



*Hollow heart symptoms. Photo: B. Phillips*

*--Written by Susan B. Scheufele*

## LATE-SEASON COVER CROPS

A well-established late season cover crop increases organic matter, improves soil structure, scavenges remaining nutrients, chokes out weeds, and prevents soil erosion. Each cover crop species has strengths and weaknesses. We have noticed that the fall planting window has extended, in some cases into November! Play with seeding dates on your farm this year; hopefully you will succeed in getting some ground cover. Below is a list of several good choices for this time of year, depending on your specific goals and field conditions.

**GRASSES** can reduce erosion and return a significant portion of organic matter and other nutrients to the soil if planted after removing a seasonal crop and if given enough time to mature. Kill grasses before maturity in the spring to ensure efficient decomposition. Mix grass species with a legume to reduce the C:N ratio and supply more nitrogen for the following year's crop.

**Annual or Italian ryegrass (*Lolium multiflorum*) and perennial ryegrass (*Lolium perenne*)** are gaining popularity with some growers because of increasing availability of commercial varieties such as ‘Fria Annual Rye’ and these grasses’ dense root system that outcompetes weeds, protects against erosion, and is easy to incorporate in the spring. Annual ryegrass can tolerate some flooding. Perennial ryegrass is more cold-hardy but also harder to kill if it goes to

seed. Both are shade tolerant but may not germinate very well under dry conditions. Plant 6-8 weeks before the fall frost date. The seed is small and light, so specialized equipment such as a Billion seeder is needed to seed a large area. **Seeding rate:** 20-30 lbs/A broadcast; 10-20 lbs/A drilled; 8-15 lbs/A mixed with a legume.

**Winter or cereal rye (*Secale cereale*)** is the most common cover crop used by growers in Massachusetts. It is inexpensive, easy to get and to establish, and can be seeded up until 2 weeks before a killing frost. However, it is best planted before September 15<sup>th</sup> in order to recover the available N from the soil and produce enough canopy to outcompete weeds and protect the soil from erosion. It consistently overwinters here and will continue to grow in the spring, producing up to 7,000 lbs/A of biomass contributing to soil organic matter. It should be seeded with a legume to keep the C:N ratio low, making more N available in the spring. Some growers are hesitant to use this cover crop because of the longer decomposition rate and allelopathic effects on direct seeded spring crops. **Seeding rate:** 90-120 lbs/A broadcast; 60-120 lbs/A drilled; 50-60 lbs/A mixed with a legume.



*Plant a grass species with a legume to maximize the benefits of both: grasses provide structure for vining legumes, like the peas pictured here, and legumes fix nitrogen for the grass. The combination provides better cover than one alone. Photo: K. Campbell-Nelson*

**Winter wheat (*Triticum aestivum*)** is increasingly being used as a cereal grain and as a cover crop. It is winter hardy, but does not grow as tall or mature as quickly as rye so there is no rush to kill it in early spring and risk compacting wet soils. Wheat is excellent for erosion control, scavenging N, P, and K, building soil organic matter, and improving tilth. For best results, plant it in late-summer to early-fall, before September 15<sup>th</sup>. Best growth will be in well-drained soils with moderate fertility. Rye is a better choice on wet soils. Wheat works well as a nurse crop for legumes such as hairy vetch, clover, or peas. **Seeding rate:** 90-160 lbs/A broadcast; 60-120 lbs/A drilled; 60-90 lbs/A mixed with a legume.

**Triticale (*x Triticosecale*)** is a hybrid between wheat and rye. It can be seeded as early as August and can produce more fall growth than winter wheat, providing more weed suppression and erosion control. **Seeding rate:** 90-100 lbs/A broadcast; 75-80 lbs/A drilled; 60-90 lbs/A mixed with a legume.

**Oats (*Avena sativa*)** come up quickly and can be seeded in the late-summer. It is best planted before September 15<sup>th</sup>, similar to winter rye. Unlike winter rye, oats will winterkill in Massachusetts, making for simpler field preparation in the spring. However, oats provide less weed control and lower organic matter contribution. To maximize nitrogen carry-over to the following crop, mix with a legume that will overwinter such as hairy vetch. **Seeding rate:** 110-140 lbs/A broadcast; 80-110 lbs/A drilled; 60-90 lbs/A mixed with a legume.

**LEGUMES** are a good choice if you are interested in adding nitrogen to the soil. Before planting, it is important to inoculate seed with the appropriate root-nodulating bacteria that will fix nitrogen from the air. Some growers use Coca-Cola or sugar water to help the inoculum stick to the seed; plant while the seed is still wet to keep the bacteria alive. There are several bacterial inoculants that are each specific to certain legumes and therefore must be used with the correct plant groups in order to establish. If well-managed, legume cover crops can provide as much as 100-150 lbs N per acre to the following crop. Imagine the fertilizer cost savings!

**Hairy vetch (*Vicia villosa*)** usually benefits from growing with a nurse crop such as rye, oats, or wheat to help reduce matting during spring and to keep weeds down. The vetch and the grain can be mixed together in the seed drill or broadcast seeder. A vetch + grass cover crop mixture retains more soil moisture than a grass planted alone. In the spring, incorporate vetch at early bloom, typically in late-May. If the vetch is planted in late-July or early-August, it is less likely to survive the winter, which can be a good thing if you've ever struggled with self-seeded vetch. With a good flail mower, vetch can be used in a reduced tillage system without matting and tangling in the equipment. **Seeding rate:** 25-40 lbs/A broadcast; 15-40 lbs/A drilled, 15-20 lbs/A mixed with a grass.

**Red clover (*Trifolium pratense*)** is a short-lived perennial that is somewhat tolerant of soil acidity or poor drainage.

Mammoth red clover produces more biomass for plow-down than medium red clover, but does not regrow as well after mowing. Mammoth will often establish better than medium red clover in dry or acid soils. Sow in early-spring or late-summer. Red clover can be undersown in mid-summer into corn or winter squash before it vines, and into other crops such as fall brassicas if soil moisture is plentiful. **Seeding rate:** 10-15 lbs/A broadcast; 6-15 lbs/A drilled; 6-10 lbs/A mixed with a grass.

**Crimson clover (*Trifolium incarnatum*)** grown as a winter annual should be seeded early-August to early-September in New England; seed it too early and it will make seeds in the fall and won't re-grow until spring soils warm up. While it grows well in dry conditions, it may have trouble germinating. This clover is a better fall weed suppressor than hairy vetch. This crop is easily killed by incorporation or can even be rolled or mowed in the spring at late-bloom stage for no-till operations. **Seeding rate:** 22-30 lbs/A (15-20 lbs/A in a mixture) broadcast; 15-18 lb/A (10-12 lbs/A in a mixture) drilled.

**Field pea (*Pisum sativum* subsp. *arvense*)** also known as Austrian winter peas (black peas) or Canadian field peas (spring peas) should be planted mid-August to mid-September in much of New England. These peas fix nitrogen more quickly in dry conditions than white clover, crimson clover, or hairy vetch. Field peas are susceptible to *Sclerotinia* so don't plant them in a field with a history of white mold. Drill or incorporate seed 1-3 inches deep to ensure good soil moisture contact. **Seeding rate:** 80-120 lbs/A broadcast; 75-100 lbs/A drilled; 60-80 lbs/A in a mix.

**BRASSICAS** are used as cover crops for pest management or, in the case of the tillage radish, for improving water drainage and soil structure. Do not plant mustards or radishes following or ahead of any brassica crops since they are in the same family and are susceptible to the same pests.

**Tillage radish (*Raphanus sativus*)**, also known as daikon, forage, or oilseed radish act as biological subsoilers, often producing 8-14 inch tap roots. With its deep roots, this cover crop can recover N, P, S, Ca, and B for the following season, but a cash crop must be planted early in the spring or else these nutrients are lost through fast decomposition and the deep root holes. Best planted in late-August, this cover crop typically winterkills in November or December. A unique no-till strategy with forage radish includes seeding it in the late summer along with cover crop mixtures on 6 ft. centered beds, then in the spring, place transplant plugs directly in the holes where the radishes grew. This cover crop releases most of its harvested N by May, unless seeded with a grass such as oats. Higher seeding rates are effective for weed management, while lower seeding rates are better for breaking compaction. **Seeding rate:** 10-13 lbs/A broadcast; 7-10lbs/A drilled; 5-8 lbs/A in a mixture.

**Brown mustard (*Brassica juncea*)** found in many of the 'Caliente' seed mixes is a biofumigant planted to combat root-knot nematode and a variety of soil-borne fungal pathogens, including *Fusarium*, *Verticillium*, *Rhizoctonia*, *Pythium*, and *Phytophthora capsici*. It is also allelopathic against weeds. If allowed to flower, this crop is highly attractive to honey bees. Successful biofumigation with this cover crop is achieved by following these steps: 1) Apply adequate fertility (50 lbs N/A and 20 lbs S/A); 2) allow it to flower before incorporation; 3) mow, disc, or rototill under, and roll or pack the soil immediately; 6) irrigate after incorporation or incorporate before rain to enhance fumigation. Plant brown mustard in late-August through September. Other brassica cover crops include rapeseed or canola and turnips, which are often used as livestock forage. **Seeding rate:** 10-15lbs/A broadcast; 8-12 lbs/A drilled.

It is always better to plant a cover crop, regardless of the type, than leave a field bare; leaving a field bare over the winter is very damaging to soil structure, increasing erosion and reducing long term fertility. Though it may take several growing seasons or a lifetime to perfect the art of cover cropping, your soil will thank you.

#### Resources:

[A Comprehensive Guide to Cover Crop Species Used in the Northeast United States](#). Prepared by: Shawna Clark.

[Managing Cover Crops Profitably](#). 3rd ed. Published by the Sustainable Agriculture Network, Beltsville, MD.

[Cover Crop Plant Guides](#) prepared for USDA by NRCS, RMA and FSA.

[Cover Crop Chart](#) prepared by USDA-ARS.

--Compiled by Katie Campbell-Nelson. Adapted from work by R. Hazzard & F. Mangan, UMass, Vern Grubinger, UVM and Thomas Bjorkman, Cornell. Reviewed by Julie Fine, 2016.

## SCOUT FOR ONION THRIPS IN BRASSICAS

While growers have been scouting for and battling onion thrips (*Thrips tabaci*) in their alliums since May, the struggle doesn't end with the onion harvest. Onion thrips can be a significant problem on cabbage, where thrips feed on inner leaves of the head, which are difficult to target with sprays. Damage may also occur on leafy brassicas such as broccoli, kale, and collards, especially fall plantings near a maturing onion crop. Thrips damage manifests as rough, golden or brown scars on the undersides of open leaves, scars and discolored layers within cabbage heads, and generally reduced vigor in plants. Inspection with a 10X lens shows wounds to the epidermis from the rasping mouthparts, and scars from wounds that healed over. Thrips damage can be confused with oedema, a physiological disorder that causes small, bump-like protrusions to form on leaf surfaces.



*Onion thrips feeding damage on cabbage.*  
Photo: G.Holmes, Bugwood.org

Tolerant varieties are the most cost-effective means of controlling thrips in cabbage, but are generally not available in other brassicas. Cabbage varieties that have shown tolerance in trials\* include Benelli, Cairo, Superkraut 86, Bravo, Brutus, Cheers, Huron, and the various Vantage varieties. Varieties that are rated as susceptible include Atlantis, Bajonet, Charmant, Checkmate, Market Prize, and Rinda. There are a great number of varieties, and not all have been tested. Also, available varieties change. Some seed catalogues rate thrips tolerance. Consult your seed suppliers and search recent research trials regarding thrips tolerance on new varieties. The [Cornell Organic Production and IPM Guide for Cole Crops](#) has an extensive list of cabbage varieties and their thrips tolerance.

Avoid thrips by not planting cabbage or fall brassica crops near alliums or field crops such as alfalfa, clover, wheat, or oat, as thrips may migrate to brassicas when these crops are cut or harvested. Scout young plants for presence and feeding injury. Begin insecticide applications when damage is first noticed; in cabbage, apply foliar treatments before heads form. In fall brassicas, the need for thrips control may coincide with sprays for flea beetle or caterpillars and some insecticides control both. Broad-spectrum products include neonicotinoids (Admire Pro, Assail) and numerous synthetic pyrethroids (including Warrior, Pounce, Baythroid, Brigade, and Mustang). Biorational or organic products include spinosad (Entrust, OMRI listed; has both contact and ingestion toxicity), spinetoram (Radiant SC), novaluron (Rimon 0.83EC, insect growth regulator for immature stages only; not for mustard greens), and pyrethrin (PyGanic EC5.0, OMRI listed; contact activity only). Repeat applications at 7 to 10 day intervals based on scouting. Use a shorter interval in hot, dry weather. Use a spreader-sticker for better coverage. Apply in early evening, using high pressure and 100 gal water/A for best results. Systemic insecticides applied as a side dress up to 4-6 weeks after transplanting may provide adequate control in long-season cabbage. Rotate between insecticide groups to help prevent or delay resistance development.

\* Information on the relative tolerance/ susceptibility of storage, kraut and summer cabbage varieties evaluated in Cornell trials from 2005 to 2009 is available online at the Cornell Vegetable Program website: <http://cvp.cce.cornell.edu>; from the sliding menu on top, click on "cabbage"; you will need to "view the complete list of cabbage content" to see all the reports.

--Written by the UMass Vegetable Program

## EVENTS

### **Attorney General Meeting on Overtime Ruling**

**When:** Friday, September 13, 2019, 1:00pm

**Where:** Nourse Farms in Whately

Farmers are invited to a meeting with State Representative Natalie Blais, The Secretary of Labor and Workforce Development's office, and the Attorney General's office to discuss the implications of the recent Chang Farm ruling by the Massachusetts Supreme Judicial Court (SJC).

In March, the SJC ruled that workers involved in on-farm “preparation for market” activities are not exempt from overtime pay while doing tasks that are considered “preparation for market”. It had been the understanding for many years that market preparation was exempt from overtime requirements.

This ruling has had significant implications for many farms across the Commonwealth. The Attorney General’s office is responsible for enforcing these policies. At the request of State Representative Natalie Blais, staff has agreed to meet with local farmers to give an overview of overtime rules and regulations and will do their best to answer questions to help you to understand the application of the ruling. The Attorney General’s office will do their best to answer questions and provide clarification on the grey areas that exist in regards to what constitutes “preparation for market” activities versus other farm tasks which are covered by the overtime exemption.

Please note that the purpose of this meeting is not to discuss or argue the merits or logic of the SJC ruling as the ruling is beyond the control of these offices. Rather, this meeting is intended to help you gain a clearer understanding of the implications of the ruling and how it will be enforced.

**If you would like to attend please RSVP by September 9th, 2019 to [lily.wallace@mahouse.gov](mailto:lily.wallace@mahouse.gov)**

Any questions, please contact Brad Mitchell, MA Farm Bureau, at (508) 481-4766.

### **[Northeast Mechanical Weed Control Expo](#)**

**When:** Thursday, September 12, 2019

**Where:** University of Maine Rogers Research Farm, 914 Bennoch Rd. (Rt. 16), Old Town, ME

**REGISTRATION:** [Click here to register for this event online.](#) \$20 on or before September 5. \$30 from September 6-11. \$40 on day of event. Pre-registration required. Registration is limited, so register early to assure a spot. No refunds can be offered for registrations made by check OR after September 5, 2019.

The Northeast Mechanical Weed Control Expo will feature tool demonstrations and research results for both vegetable and grain production. Hand-tools, walk-behind tractors/tool carriers, and tractor-mounted equipment will be on display and demonstrated in the field, and will include equipment from Terrateck® and Johnny’s Selected Seeds, HAK®, Tilmor®, K.U.L.T.-Kress®, Garford®, Treffler® Harrows, and Franklin Robotics. We invite farmers of all levels of experience and production to participate. The day will include:

Research presentations and posters

Field demonstrations of tools for small-, mid- and large-scale growers

Friendly competition testing your weed knowledge and cultivation skills!

Plenty of time to connect with fellow growers, researchers, and industry representatives

*The Northeast Mechanical Weed Control Expo is supported by grants from the USDA-NIFA Organic Agriculture Research and Extension Initiative (OREI) and the Northeastern IPM Center.*

### **[Acidified Canned Foods Workshop & Webinars](#)**

Producing shelf-stable acidified canned foods can help to add value to produce and help to increase markets, extend the agricultural season, and reduce waste. However, in order to successfully sell and distribute shelf-stable products, such as salsas, sauces, and/or acidified pickled products, processors must comply with the Code of Federal Regulations (21CFR114). This project identified and developed 12 shelf-stable acidified canned food recipes and converted them into scale-appropriate product formulations, established the appropriate food safety controls, and had all the product formulas reviewed by a regulatory approved Process Authority to issue a validated scheduled process for commercial use. These programs will include the overall product development process, review the product formulation manual, discuss some of the product development challenges that occurred during development, and discuss how processors can request access to these product formulations for their own market use to produce at their own commercial facilities.

#### **3-Hour Workshop:**

**When:** Tuesday, September 24, 2019, 5:30-8:30pm

**Where:** UMass Food Science Pilot Plant, 102 Holdsworth Way, Amherst, MA 01003

**Registration:** Register by Friday, September 20 at 5pm. [Click here to register for the workshop.](#) There is a \$20

program deposit fee, which will be reimbursed after the completion of the program.

**1-Hour Webinar:**

**When:** Wednesday, September 25, 2019, 12:30-1:30pm OR Thursday, September 26, 2019, 6-7pm

**Registration:** [Click here to register for one of the webinar times.](#)

Questions? Contact Teddy Phan at [ttphan@umass.edu](mailto:ttphan@umass.edu)

*This program is supported by the University of Massachusetts, the Massachusetts Department of Agriculture through the USDA Specialty Crop Block Grant, the Franklin County Community Development Corporations' Food Processing Center, Commonwealth Kitchen, and the Northeast Center to Advance Food Safety (NECAFS)*

**Vermont Vegetable & Berry Growers Association On-Farm 2019 Workshop Series**

The Vermont Vegetable & Berry Growers Association is holding a series of nine on-farm workshops from June through November this year. For more information on all workshops in this series, please click the linked event title above.

Attendance at these events is free for members of the Vermont Vegetable & Berry Growers Association. The cost is \$10 per-person for non-members, payable on-site. Refreshments will be served. Membership in the VVBGA costs \$55 per farm, per calendar year. The VVBGA works with University of Vermont Extension to deliver education and applied research for its growers.

**Wednesday, September 25, 3-6 pm.** Mighty Food Farm, 280 Rod and Gun Club Rd., Shaftsbury, VT 05262. Lisa MacDougall grows vegetables, berries and cover crops on 20 acres of hillside land and in five high tunnels for CSA and wholesale markets. She will host a tour of her new wash/pack facility with Chris Callahan and Andy Chamberlain on hand to discuss design considerations. Vern Grubinger and Becky Maden will assist with discussion of fall cover crops, nutrient management, erosion control, and high tunnel vegetable production.

**Questions?** Contact Vern Grubinger, 802-257-7967 x303. To request a disability-related accommodation, contact Dana Rupert, 802-257-7967, three weeks prior to an event so we may assist you.

**THANK YOU TO OUR SPONSORS:**



*Vegetable Notes. Katie Campbell-Nelson, Genevieve Higgins, Lisa McKeag, Susan Scheufele, co-editors.*

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