



UMass
Extension

Vegetable Notes

For Vegetable Farmers in Massachusetts since 1975



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IN THIS ISSUE:

- Crop Conditions
- Pest Alerts
- Preparing for the Fall Flight of Allium Leafminer
- Fall Soil Testing
- Sweet Potato Harvest & Storage
- News
- Events
- Sponsors



*Pumpkins and winter squash ready to harvest!
Photo: S. B. Scheufele*

CROP CONDITIONS

This week has felt suddenly like fall, with cool mornings and warm afternoons. Some winter squash is starting to be harvested, with other growers wondering whether to leave still-immature fruit in the field to ripen or to harvest early and avoid more disease. Several farms that planted their tomatoes later than planned are still getting good harvests, whereas farms that planted “on-time” might have had higher disease pressure due to the July rain. Sweet potato harvest will begin soon, if it hasn’t already. As field crops are finishing up, growers are getting cover crops into the ground and starting to seed winter high tunnel crops, and as field work slows down, farm crews are spending time sorting and grading onions and garlic.

USDA continues to expand the ways that they can give farmers money through the CFAP2 program—if you haven’t taken advantage of this program yet, we strongly encourage you to! Originally, CFAP payments were based on 2019 sales of eligible commodity crops (which includes all vegetable crops and more). Farmers can now choose to have their payment based either on 2019 *or* 2018 sales, if using 2018 sales would result in a higher payment. You can amend your application even if you have already received a payment! Contact your [county FSA office](#) to amend your application.

PEST ALERTS

Alliums

[Allium leafminer](#) is expected to be flying around this time in the Northeast. Adults emerging now will lay eggs primarily in leeks, since they are the last allium crop left in the field. For more information see the article this issue, and please let us know if you see damage by sending photos to umassveg@umass.edu so we can get a better idea of where this emerging pest is currently occurring.



*Purple blotch on leek.
Photo: G. Higgins*

[Purple blotch](#) was observed on leeks last week. This disease often begins on older leaves as small, sunken, water-soaked lesions with light centers. Lesions enlarge as disease progresses and turn purple to brown, often with yellow rings that create a distinctive bull’s-eye pattern. Leaves turn yellow/brown and wilt, and may be girdled. Younger leaves become more susceptible as the crop matures. In onions, bulbs may become infected through neck wounds. Bulb rot symptoms begin as soft, water-soaked areas; eventually, bulbs turn dark reddish-purple, then brown/black. The disease can continue to spread in storage.

Brassicas

[Cabbage root maggot](#): The fall generation of CRM usually occurs around this time, although the exact timing is harder to predict than the overwintering generation that emerges in the spring. Adult flies lay eggs at the base of bras-

CONTACT US:

Contact the UMass Extension Vegetable Program with your farm-related questions, any time of the year. We always do our best to respond to all inquiries. **Office phone:** (413) 577-3976 *We are currently working remotely but checking these messages daily, so please leave us a message!* **Email:** umassveg@umass.edu

Home Gardeners: Please contact the UMass GreenInfo Help Line with home gardening and homesteading questions, at greeninfo@umext.umass.edu.

sica plants and larvae cause tunneling damage to the roots—tunneling from this fall generation is especially damaging to root crops like turnips and radishes. Excluding flies with row cover—or better yet, with insect netting that doesn't trap in heat—is one way to prevent damage but requires that fall brassicas are planted far from spring and summer plantings to ensure that flies that were pupating in the soil don't emerge from underneath the cover. Insecticides can also be used for transplanted and direct-seeded crops—see the [Radish](#), [Rutabaga and Turnip](#), and [Cabbage, Broccoli, and Cauliflower](#) insect control sections of the New England Vegetable Management Guide for lists of labeled products.



Cabbage root maggot damage on turnips



Cabbage whitefly on Brussels sprouts
Photo: A. Radin

Cabbage whitefly was reported in Rhode Island this week, where the pest numbers were high. This invasive pest is native to Europe and is uncommon in MA, but has been reported sporadically throughout the Northeast since it was first observed here in 1993. It has a wide host range, but its preferred hosts are cabbage, Brussels sprouts, cauliflower, broccoli, and kale. Cabbage whitefly leaves circular waxy areas on the undersides of leaves which reduce crop quality, along with the presence of eggs, nymphs, and sooty mold that can occur on the waxy deposits. Please let us know if you see cabbage whitefly and send a photo to umassveg@umass.edu.

Cucurbits

Phytophthora blight is continuing to pop up in previously uninfested fields and spreading through affected fields as the wet weather continues. A lot of questions coming in about what to do once disease shows up in a field:

- Till in large affected areas promptly and deeply. Include a 10-ft buffer of healthy looking plants.
- Harvest from uninfested fields before you go into infested fields with tractors, trucks, workers, and bins.
- Take time to wash equipment when moving between fields to remove soil or crop residues.
- Do not leave fruit in fields or in cull piles, as a single fruit infected with both mating types of *P. capsici* can contain thousands of oospores that could establish populations in new fields or contribute to increasing the population size and diversity within an already infested field.
- Don't compost infected fruit, which can contain huge amounts of inoculum which may or may not be adequately heat-killed during composting, risking spreading the inoculum to other fields.
- Hold fruit for 2-6 days before sending large wholesale shipments out to avoid having them returned due to postharvest rot.



Phytophthora on pumpkin fruit
Photo: M.T. McGrath

Cucurbit downy mildew was observed on butternut squash in Hampshire Co. this week and is likely present in other locations throughout the state and region. To see symptoms of this disease on various cucurbit crops visit [this site](#). All butternut through the region should be considered at risk for developing downy mildew. If you aren't spraying already and your squash is still maturing, you should be spraying butternut and other squash with targeted downy mildew-specific materials like Orondis Opti, Elumin, Ranman, and Zampro, for example. For a complete list of labeled fungicides, see the [Pumpkin, Squash, and Gourds disease control section](#) of the New England Vegetable Management Guide, and for more information, see the article in the [June 17, 2021 issue of Veg Notes](#).

Squash vine borer adults are no longer being caught at any of our remaining trapping locations. We will continue trapping for this pest through October 15, in order to detect a possible second flight later this fall.

Solanaceous

Bacterial canker was diagnosed on pepper in Hampshire Co. this week. This pathogen usually occurs on tomatoes but in rare cases is able to infect pepper plants in the field, causing symptoms that include wilting, leaf yellowing, and marginal scorch. We saw quite a lot of canker this year on tomatoes across the region, which is perhaps why it is showing up now on pepper, as there is a lot of inoculum out there. The bacterium survives on crop residues, wooden stakes, and potentially in solanaceous weeds. Promptly till in crop residues and practice good sanitation of all greenhouse and field equipment to prevent the disease from showing up again next year. Copper fungicides can slow disease spread if a regular spray program is initiated early on.

Sweet corn

European corn borers are gone and numbers of **corn earworm** and **fall armyworm** are lower this week, but silking corn is still at risk for infestation from either of these two pests and trap numbers indicate a 4-6 day spray schedule. Since fall armyworms are present, if you do have younger whorl stage or tasseling corn those blocks should be protected as well, though most corn in MA is past this stage now.

Table 1. Squash Vine Borer trap captures, week ending September 9

Location	SVB
North Easton	0
Westhampton	0
Whately	-
Leominster	0



Downy mildew sporulation on the underside of a butternut squash leaf. Photo: S. B. Scheufele

Table 2. Sweetcorn pest trap captures for week ending September 9

Location	GDD (base 50°F)	ECB NY	ECB IA	FAW	CEW	CEW Spray Interval
Western MA						
Deerfield	2489	0	0	4	21	4 days
Southwick	2424	0	0	5	2	6 days
Whately	2576	5	1	5	2.5	6 days
Central MA						
Lancaster	2409	0	0	3	9	4 days
Leominster	2410	0	0	2	9	4 days
Northbridge	2275	0	0	5	10	4 days
Spencer	2374	0	0	4	7	5 days
Eastern MA						
Ipswich	2379	0	0	1	4	5 days
Concord	2413	1	0	0	16	4 days
Millis	-	0	0	0	2	6 days
North Easton	2545	0	0	N/A	-	-
Sharon		0	0	0	2	6 days
Seekonk	2764	0	0	3	27	4 days
- no numbers reported for this trap						
N/A this site does not trap for this pest						
*GDDs are reported from the nearest weather station to the trapping site						

PREPARING FOR THE FALL FLIGHT OF ALLIUM LEAFMINER

--Written by Ethan Grundberg, Cornell Cooperative Extension. Adapted for Massachusetts growers by G. Higgins.

The invasive fly pest, allium leafminer (*Phytomyza gymnostoma*), has been established in the Northeast since 2016 and has caused crop damage as far north as Washington County, NY, as far east as central Connecticut, and as far west as the Finger Lakes region of NY (see map for known distribution). In research trials, the fall flight has caused damage to over 98% of leeks that were not covered or managed with insecticides, so now is the time to plan for managing allium leafminer (ALM) in the coming weeks.

Lifecycle: Though we still do not have accurate phenology models to allow us to predict the emergence of the fall flight, fall ALM adult activity has begun in mid-September the past four years (September 19, 2017, September 11, 2018, September 9, 2019, and September 8, 2020), so we anticipate a similar emergence time this year. Adults are active for approximately 7 weeks, or through the end of October. Emerged adults create the diagnostic line of oviposition puncture marks on allium leaves during feeding and egg-laying. Larvae that hatch from eggs eat their way down the inside of the leaves toward the bulbs opening up physical wounds where soft rot pathogens often enter. The larvae then pupate either inside the bulb and stem or in the soil around the plants for the winter and early spring. The spring generation typically emerges in mid-April and is active for about 5-6 weeks.

Damage: Since there are typically fewer cultivated and wild alliums in the environment in the fall, growers in the Northeast have experienced a “concentration effect” with their fall-grown alliums. Leeks that were not treated with insecticides averaged over 40 maggots and pupae per plant, with a high of 160, in research trials conducted by Teresa Rusinek and Ethan Grundberg in the fall of 2020. Much smaller populations of allium leafminer can still be problematic, causing cosmetic damage to scallion foliage and opening physical wounds in leeks where soft rot bacteria can ruin the crop.

Cultural Controls: Growers relying on row cover to exclude adult flies from host crops should install the covers before the flight begins. Field trials funded by Northeast SARE in 2020 demonstrated that waiting until two weeks after the fall flight had begun to cover leeks resulted in much higher densities of ALM larvae and pupae in the plants (see more information from the trials [here](#)). Growers have had success using insect netting, like Protek-Net, to reduce the risk of heat stress associated with spun bond covers. Both spun bond row cover and insect netting must be well-anchored to prevent gaps between the ground and the crop in order to be effective.

Rusinek and Grundberg have also found that ALM severity was reduced by about 33% in both spring and fall scallions as well as fall leeks when those alliums were planted on reflective plastic mulch compared to either black or white plastic. However, unsprayed fall leeks on reflective mulch in 2019 still had, on average, over 30 ALM maggots and pupae per plant, so using reflective mulch alone does not appear to provide sufficient suppression. Rusinek and Grundberg have found that combining reflective plastic mulch with two carefully timed applications of Entrust with M-Pede (see chemi-

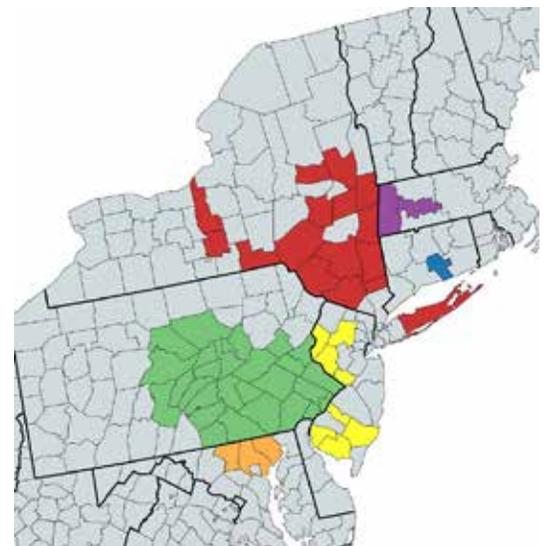


Left: Adult ALM oviposition marks on onion leaves.

Photo: E. Grundberg

Right: ALM pupae in leek, with soft rot in the larval mines.

Photo: T. Rusinek



Current known ALM distribution as of fall 2021

cal controls below) has resulted in up to a 92% reduction in the number of ALM maggots and pupae in leeks compared to unsprayed leeks on white plastic mulch.

Chemical Controls: Cornell entomologist Dr. Brian Nault has been conducting insecticide efficacy trials for ALM management since fall 2017. Based on preliminary findings from those trials, it appears as if a number of conventional chemistries are effective at reducing damage from ALM on transplanted onions and scallions.

- **Scorpion 35 SL** (dinotefuran, IRAC Group 4A) has been the most effective at reducing damage from ALM in both NY trials and in Pennsylvania. It is registered for use in all New England states but is *not* registered for use in New York State. Scorpion is labeled for foliar and soil applications, but foliar applications at 7 fl oz/acre were found to be significantly more effective than drip applications.
- **Exirel** (cyantraniliprole, IRAC Group 28). 2(ee) label required for NY growers -- available here: <https://www.dec.ny.gov/nyspad/products?3>. 13.5 fl oz/acre
- **Radiant** (spinetoram, IRAC Group 5) at 8 fl oz/acre
- **Warrior II with Zeon Technology** (lambda-Cyhalothrin, IRAC Group 3A) at 1.6 fl oz/acre.

Growers who have been spraying leeks all summer for onion thrips need to make sure that they have not already reached the maximum annual application rate of Radiant and Exirel (cyantraniliprole, the active ingredient, is also in the pre-mix product Minecto Pro and counts toward maximum active ingredient application rates).

Organic growers unable to use row cover are encouraged to use **Entrust** (spinosad, IRAC Group 5) at the 6 oz/acre rate mixed with a 1%-1.5% v/v solution of **M-Pede** (potassium salts of fatty acids) for better penetration of the waxy cuticle. Given the resistance management restrictions on the Entrust label, growers are only able to make 2 sequential applications of spinosad before rotating to an insecticide in a different IRAC group. Given these restrictions, Rusinek and Grundberg designed trials in 2018 and 2019 in an effort to identify the most effective timing of 2 applications of Entrust plus M-Pede on leeks. This research found that **focusing those 2 sprays 2 to 4 weeks after first detected ALM emergence provided the best control in fall leeks**. As mentioned above, combining those two insecticide applications with reflective plastic mulch provided the largest numeric decrease in ALM maggots and pupae per leek in trials in 2019 (see graph). Pyganic, Surround, and Aza-Direct did not provide any statistically significant reduction in ALM damage in trials conducted by Dr. Nault. However, Rusinek and Grundberg will be evaluating adding a spray of Azera to a program with two applications of Entrust in 2021 to compare ALM suppression to two sprays of Entrust with M-Pede alone. Dr. Nault also compared the efficacy of Entrust with Nu-Film P to the performance of Entrust with M-Pede in at least one of his trials and found that adding Nu-Film, an aggressive sticker, resulted in more allium leafminer damage.

We suspect that the current geographic distribution of ALM in MA is wider than reported, and also that the distribution will continue to expand this fall, so growers across MA and CT, in the Hudson Valley, and north of the Capital District in NY should be on the lookout for signs of activity. We are recommending that growers thoroughly inspect allium leaves for the linear adult oviposition marks of at least 10 plants on each field edge on a weekly basis beginning the first week of September until activity is observed. If you have any questions about what you are seeing in your fall alliums, please contact your state Extension specialists. MA growers can contact us at umassveg@umass.edu.

Additional Resources:

- Eastern New York Vegetable News Podcast Allium Leafminer Update: <https://soundcloud.com/easternnewyorkveg-news/allium-leafminer-alm-update>
- UMass Pest of the Year Allium Leafminer Presentation: <https://www.youtube.com/watch?v=IadfeJ1dWVo&t=3845s>

FALL SOIL TESTING

Although soil samples can be taken any time of year, many prefer to take samples in the fall because this allows time to apply any needed lime to adjust pH, plant a cover crop to recover any leftover nutrients, make a nutrient management plan, and order materials well in advance of spring planting. Furthermore, the UMass Soil Testing Lab and most similar labs experience delays in the spring due to high demand, but turn results around faster in the fall and winter. It is best to take soil samples at the same time of year for the most consistent and reliable results. Avoid sampling when the soil is very wet

or soon after a lime or fertilizer application. If a field is uniform, a single composite sample is sufficient. A composite sample consists of 10 to 20 sub-samples taken from around the field and mixed together. To obtain sub-samples, use a spade to take thin slices of soil representing the top 6" to 8" of soil. A soil probe is faster and more convenient to use than a spade. Make sure to remove any thatch or other organic debris such as manure from the surface before taking your sample, as this will result in inaccurate soil organic matter levels. Put the slices or cores into a clean container and thoroughly mix. Take about one cup of the mixture, dry it at room temperature spread out on paper, put it in your own zip lock bag, and tightly seal it. Label each sample on the outside of the bag. On the submission form to the lab for each sample, indicate the next crop to be grown, recent field history, and any concerns. While the preceding instructions are correct for the UMass Lab, make sure you follow specific sampling, packaging, and labeling instructions for any lab you use.



Taking a soil sample with a soil corer.

In many cases, fields are not uniform. There are many reasons for this, including uneven topography, wet and dry areas, different soil types, and areas with varying previous crop and fertilizing practices. For example: "There was a tractor mishap in this field years ago and a ton of lime was dumped right here." In such cases, the field should be subdivided and composite samples tested for each section. Alternatively, problem areas can be avoided entirely.

Soils should be tested for organic matter content every two or three years. Be sure to request this as it is not part of the standard test. A standard soil test at the UMass Soil Lab costs \$20; with organic matter it costs \$26.

Submitting soil samples

Different labs offer different sets of nutrient analyses appropriate for different types of materials. The UMass Soil Lab is currently offering standard soil tests, pre-sidedress nitrate tests (PSNTs), soil texture analysis, and soilless greenhouse media tests. Manure or compost analysis and plant tissue analysis is available through the [University of Maine Soil Lab](#). [Ordering information and forms for the UMass Soil Lab are available here](#)—**service availability changes from time to time, so be sure to check before sending in samples to ensure that the service you're looking for is currently available.** Below are brief descriptions of a standard soil test and a nitrate test:

A standard soil test includes phosphorous, potassium, calcium, magnesium, and sulfur, as well as micronutrients. The standard test automatically includes pH, but does not include nitrate or organic matter; these additional parameters can be requested as add-ons to the standard test. Results from a standard soil test will inform how much of what type of fertilizer or soil amendment you should add to a field for next season's crop. When submitting your soil sample for testing, you can include a crop code on the form for the crop to be grown in that field the following year, and you'll receive nutrient recommendations based on that crop and the soil test results. Haven't prepared your crop rotation plans yet? No worries. You may ask for recommendations for up to 3 different crops without extra charge. Use the correct form for either Commercial Vegetable and Fruit Crop Soil submissions or Home Garden Soil submissions.

A fall nitrate test, or "report card nitrate test", as some university labs call it, indicates how closely crop nitrogen (N) uptake has been matched with nitrogen supply for the season. High (> 20 ppm) or excessive soil nitrate content in the fall indicates that too much N fertilizer was applied in the prior season. Nitrate is very ephemeral in soils and is easily lost to leaching and to the air, so nitrate left in the soil at the end of the season will not be there next spring. If you have high or excessive soil nitrate content in the fall, planting a fall cover crop will scavenge this N. When the cover crop is tilled in the following spring, that N will then be available for your next cash crop. At the UMass Soil Lab, use the [Pre-Sidedress Soil Nitrate Test form](#) to submit a nitrate test soil sample, or check the box for nitrate on the standard soil test submission form; it is only an additional \$6.

Interpreting results and choosing amendments

For specific information on interpreting your UMass Soil Test results, see [this factsheet](#) that accompanies each soil test report. Below are descriptions of several soil amendments that you may consider adding or practices that you may implement in the fall, based on soil test results. Additionally, you can use fall soil test results to calculate your spring fertilizer applications.

Soil pH: Most New England soils are naturally acidic (pH of 4.5 to 5.5) and need to be limed periodically to keep the pH in the range of 6.0 to 7.0, which is ideal for most vegetable crops and beneficial microbes. The lab report will recommend the amount of lime to apply based on active and exchangeable acidity as well as the crop(s) to be grown. Active acidity is a measure of the H⁺ ions in solution, while exchangeable acidity is a measure of H⁺ ions adsorbed on soil humus and clay colloids. Soils with a higher cation exchange capacity (CEC) have a greater potential for higher exchangeable acidity. Therefore, more lime will be needed to raise the pH in a high CEC organic matter soil than in a low CEC sandy soil with the same amount of active acidity. Lime can be applied any time, but fall is preferred to allow several months to raise the pH. Split applications (half in the fall and half in the spring) may also be effective.

Compost is often applied in order to increase soil organic matter. However, do not overlook the fact that composts contain nutrients which are soluble and available for crop use just like commercial fertilizers. While only about 10% of the total N content in compost is available to the crop each year, 80-100% of the P has been shown to be available, increasing the potential for losses to the environment if not applied to actively growing crops. Phosphorous content also varies in compost from 0.1-3%, so analysis is important for determining rates of application.

A compost analysis should be completed to measure nutrient availability and to determine if the product is finished before applying to the field. Unfinished compost applied to the field may harbor pathogens or harm crops as it continues to decompose. Ammonium content below 100mg/kg and a carbon:nitrogen ratio of 20:1 indicates a finished compost. Higher amounts of ammonia indicate active decomposition, or unfinished compost. The C:N ratio is reduced as microbes break down carbon content in the pile and convert it to CO₂.

Matured compost applications are usually made in the spring; however, testing may happen in the fall in order to estimate plant available nutrients for next year's crop and help determine future compost application rates.

Manure is an excellent source of nutrients, however, as manure ages and decays, considerable nutrient loss occurs from leaching, surface runoff, or volatilization of ammonia into the atmosphere. Manure may also contain pathogens such as *E. coli* and *Salmonella*. If manure is used, vegetables should not be harvested before 120 days after application (or 90 days for vegetables that do not contact the soil, such as peppers, tomatoes, or eggplant). This is a requirement for organic production and for farms covered by the Food Safety Modernization Act and is good practice for any exempt farms as well. Ideally, manure should be applied in the fall or to a non-food rotation crop. Fall-applied manure should be incorporated immediately and a winter cover crop should be planted to protect N from leaching. Make manure applications in cold weather to reduce volatilization, but not to frozen ground as this increases surface runoff potential. In no-till systems, research has shown that manure can be effectively surface-applied to a growing cover crop to reduce nutrient losses, but not to bare ground. In order to make accurate nutrient applications to best fit your crop needs, a manure analysis should be conducted—manure analysis is available through the [UMaine Soil Lab](#). Be sure to submit your samples in a tightly sealed container or the postal service will be very unhappy with you!

Cover crops planted in the fall, (preferably before September 15, although that date is moving later and later every year), are an excellent way to capture and store nutrients for your crops in the following spring. All cover crops will scavenge leftover N, but different cover crop types have different effects on PAN.

Legume cover crops provide up to 100 lb PAN/A, because they fix nitrogen from the air. To maximize PAN contribution from legumes, kill the cover crop at bud stage in the spring.

Cereal cover crops immobilize up to 50 lb PAN/A because the high carbon content leads to a spike in soil microbe activity, which ties up the nitrogen in the soil. To minimize PAN immobilization from cereals, kill the cover crop during the early stem elongation (jointing) growth stage.

Legume/cereal cover crop mixtures provide a wide range of PAN contributions, depending on legume content. When cover crop dry matter is 75% from cereals + 25% from legumes, PAN is usually near zero.

Micronutrient levels are often not accurately measured with standard soil tests, because the micronutrient content in soil is so low and plants require relatively very low levels of most micronutrients. Micronutrient deficiencies are not widely found in New England soils. A standard soil test from the UMass Soil Lab does report recommended ranges for micronutrients—these ranges are in fact the ranges found in all soils that come through the lab. The best way to diagnose and address micronutrient deficiencies in vegetable crops is to scout for nutrient deficiency symptoms and submit tissue samples during the growing season. For recommendations on specific micronutrients needed for crop growth, such as boron, see

the [New England Vegetable Management Guide section on micronutrients](#). Preferred timing of micronutrient applications in the fall versus spring has not been determined.

Other nutrient applications should be avoided until spring when a growing crop is best able to use the applied nutrients in water soluble form and avoid leaching, runoff, or volatilization.

Need further assistance interpreting your soil test results? Contact the soil lab or any of the following Extension Educators:

Vegetables:

UMass Vegetable Team

Phone: (413) 577-3976

Email: umassveg@umass.edu

Cover Crops:

Masoud Hashemi

Phone: (413) 545-1843

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Greenhouse:

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--Written by Katie Campbell-Nelson, UMass Vegetable Extension, 2015.

SWEET POTATO HARVEST & STORAGE

The UMass campus is teeming with students—a sure sign, and one we didn't get to see last year, that fall is just about here and the big dig of root crops destined for storage is truly underway. Growers are starting to dig around to see how big their sweet potatoes have gotten under all of those vines. Sweet potatoes can be harvested whenever they reach a marketable size, but if you're looking to maximize yields, they should be dug as late as possible in the fall, according to research done by Becky Sideman at UNH Extension. While vines can tolerate a light frost, the roots should come out before a hard freeze sets in. For more information on Becky's research, including a list of varieties trialed in New Hampshire, see the full reports: [Growing Sweet Potatoes in New Hampshire](#) and [Sweet potato early harvest study, 2014](#). Sweet potatoes require different storage conditions than other common New England root crops. Once harvest is completed—generally by early to mid-October—curing and storage considerations continue to be important.

Harvesting. Sweet potato roots continue to grow until the leaves are killed by frost or until soil temperatures fall consistently below 65°F, whichever comes first. Check current soil temperatures here: <http://newa.cornell.edu/index.php?page=soil-temperature-map>. Time of harvest is often determined by digging up a few representative plants and assessing the percentage of roots in different size classes—the crop can be harvested whenever the majority of the roots are the desired size. If a hard frost occurs, the tops of the plants turn black. At that point, it is imperative to harvest as quickly as possible regardless of root size. Chilling injury can occur if soil temperatures drop below 55°F. It is also important to avoid holding sweet potatoes in saturated, low-oxygen soil conditions prior to harvest, as this promotes rapid decay in storage. Take care when harvesting. Unlike tubers such as white potatoes, which form thickened, protective skins that bind tightly to the underlying tissue, sweet potatoes have thin skins that can be easily damaged by equipment or rough handling.

Curing. Any abrasions or wounds created at harvest can lead to rot in storage. Curing immediately after harvest is recommended when sweet potatoes will be held in storage for later sales. Curing minimizes damage and loss during storage by healing harvest wounds. During the curing process, a corky periderm layer is formed below damaged areas, which prevents invasion by pathogens and limits water loss. To cure sweet potatoes, keep roots at 82-86°F and high relative humidity (90-97% RH) for 4 to 7 days. Respiration rate is high during curing, so ventilation is important to remove CO₂ and replenish O₂. A greenhouse can provide good curing conditions.

A freshly harvested sweet potato is more starchy than it is sweet. During curing and storage, starches in the sweet potato are converted to sugars, improving flavor. The change in sugars is measurable within one week, but it is recommended to wait at least three weeks after harvest before consuming sweet potatoes to allow for more conversion of starches to sugars and maximum eating quality.

Storage. Sweet potatoes can maintain excellent quality for up to a year if proper storage conditions are achieved. The ideal storage conditions for sweet potato are the same as for winter squash; moderately warm (55-60°F) and 60-75% relative humidity. Like winter squash, sweet potato suffers chilling injury at temperatures below 55°F and injury increases

with lower temperatures or longer periods of exposure. Signs of chilling injury include shriveled, sunken, dark areas on the tuber surface, and blackening of tubers when cut open. ‘Hardcore’ is a physiological disorder cause by chilling, in which areas of the tuber become hard—the condition is not apparent in fresh roots but appears after cooking. Because chilling injury is irreversible and makes tubers unmarketable, growers should take particular care to avoid field curing, or storage conditions that dip below 55°F.

--UMas Extension Vegetable Program

NEWS

SWEET CORN GROWERS: SURVEY TO IMPACT CORN EARWORM MANAGEMENT RESEARCH IN THE NORTHEAST

Dr. Kelly Hamby, Associate Professor/Extension Specialist with the Department of Entomology at University of Maryland, is leading a team of researchers who have developed a survey to prioritize research and extension efforts for improving corn earworm management in sweet corn throughout the Northeast. We appreciate your participation in this survey and will use results to develop a grant proposal to try to get federal funding to address these needs.

Survey link: https://ume.qualtrics.com/jfe/form/SV_9vRh1xHnDp4KEaa

WE'D STILL LOVE YOUR FEEDBACK!

Let us know how you use the New England Vegetable Management Guide

Do you use the New England Vegetable Management Guide as a resource? If so, we want to hear from you!

The authors of the New England Vegetable Management Guide want to learn more about how the guide is used, so that we can make it as useful as possible. While we are revising the guide, we have designed a short survey to better understand what YOU value in the guide. Please consider taking 5 minutes to provide your feedback and suggestions.

[Click here to complete the survey](#)

IMPORTANT UPDATES TO PANDEMIC ASSISTANCE FOR VEGETABLE & FRUIT PRODUCERS

USDA made two important announcements on August 24, 2021 for assistance to “sales commodity” producers. “Sales commodities” include fruits, vegetables, maple sap, honey, Christmas trees and tobacco.

Originally under the Coronavirus Food Assistance Program 2 (CFAP 2), payments were based upon 2019 calendar year sales of eligible “sales commodity” crops. USDA announced an amendment to the CFAP 2 payment calculation for “sales commodities” to allow producers to substitute 2018 sales for 2019 sales. Producers are encouraged to take a look at their 2018 sales and to contact their [USDA FSA Office](#) to modify their CFAP 2 application if using the 2018 sales would result in a higher payment. Similarly if a producer hasn't filed a CFAP 2 application for sales commodities, those producers now have the option of using either 2018 or 2019 sales.

USDA also announced the final deadline for filing a new or modified CFAP 2 application with the USDA-FSA as **October 12, 2021**.

Producers are encouraged to contact the FSA Office that serves their farming operation with questions they have along with procedures to file a new or modified application and related paperwork. Producers should call their FSA Office before visiting the FSA Office since FSA may have restrictions in place for in-person office visits. Sales records are not required at the time of signup but producers will have to provide evidence of total sales if the application is selected for a later spot-check. As of August 22, 2021, 1,260 approved CFAP 2 “Sales Commodities” applicants in Massachusetts have received \$27,698,404 in payments. Don't miss out on this opportunity!

Detailed information also can be found at: <https://www.farmers.gov/coronavirus/pandemic-assistance/cfap2>

USDA TO INVEST \$50 MILLION IN NEW COOPERATIVE AGREEMENTS FOR RACIAL JUSTICE AND EQUITY

The U.S. Department of Agriculture (USDA) is investing up to \$50 million in cooperative agreements to support historically underserved farmers and ranchers with climate-smart agriculture and forestry. The Racial Justice and Equity Conservation Cooperative Agreements are available to entities for two year projects that expand the delivery of conservation assistance to farmers who are beginning, limited resource, socially disadvantaged and veteran farmers. **Applications are due October 25, 2021.**

[Click here to see the full USDA press release.](#)

[For more details and information on how to apply, click here.](#)

GUIDANCE FOR FLOOD-AFFECTED FOOD CROPS

With the excessive amount of rain we've received this year, there are many farms that have experienced flooding, particularly in the western end of the state. If your farm is susceptible to flooding, please read the FDA's **Guidance for Industry: Evaluating the Safety of Flood-affected Food Crops for Human Consumption**, found [here](#).

Per the guidance: "If the edible portion of a crop is exposed to flood waters, it is considered adulterated under section 402(a)(4) (21 U.S.C. 342(a)(4)) of the Federal Food, Drug, and Cosmetic Act and should not enter human food channels. There is no practical method of reconditioning the edible portion of a crop that will provide a reasonable assurance of human food safety. Therefore, the FDA recommends that these crops be disposed of in a manner that ensures they are kept separate from crops that have not been flood damaged to avoid adulterating "clean" crops (Ref. 1, 2, 3)."

The guidance also addresses potential microbial, chemical and fungal contamination, the safety of food crops when flood waters did NOT contact the edible portion of the crop, as well as flooding vs. pooled water.

Please contact MDAR's Produce Safety Division if you have any questions regarding the safety of your crops: Kate Bailey, Produce Safety Inspector, Phone: 857-315-7478, Kate.Bailey@Mass.Gov

SNAP PROCESSING EQUIPMENT AVAILABLE FOR FARMERS AND FARMERS MARKETS: APPLY BY SEPTEMBER 24

Free mobile SNAP processing equipment from Novo Dia Group is now available to direct-marketing farms and farmers' markets through the Department of Transitional Assistance, in collaboration with the Department of Agricultural Resources, and with financial support from the United States Department of Agriculture (USDA). Eligibility is limited to SNAP-authorized farms and markets that do not currently have working equipment received through previous federal grants. Equipment will not process credit/debit. For complete program details and a link to the application, go [here](#).

Are you looking for SNAP processing equipment but not eligible for this program? Learn about other options, [here](#).

Questions? Contact David Webber, 617-626-1754 or David.Webber@mass.gov or DTA.HIP@mass.gov.

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USDA ACCEPTING APPLICATIONS TO HELP COVER COSTS FOR ORGANIC CERTIFICATION

Organic producers and handlers can now apply for U.S. Department of Agriculture (USDA) funds to assist with the cost of receiving or maintaining organic certification. Applications for the [Organic Certification Cost Share Program](#) (OCCSP) are due Nov. 1, 2021.

OCCSP provides cost-share assistance to producers and handlers of agricultural products for the costs of obtaining or maintaining organic certification under the USDA's National Organic Program. Eligible producers include any certified producers or handlers who have paid organic certification fees to a USDA-accredited certifying agent during the 2021 and any subsequent program year. Producers can be reimbursed for expenses made between Oct. 1, 2020 and Sept. 30, 2021 including application fees, inspection costs, fees related to equivalency agreement and arrangement requirements, travel expenses for inspectors, user fees, sales assessments and postage.

Organic farmers and ranchers may apply through an FSA county office or a participating state agency.

EVENTS

UVM EXTENSION AG ENGINEERING: VIRTUAL SCRUB TWILIGHT MEETINGS

The UVM Extension Ag Engineering Program is holding a series of virtual twilight meetings on a range of postharvest efficiencies and best practices. See the series page, [here](#), for details about each session and registration links.

When: Wednesdays, September 1 - October 6, 6:30-8pm

Where: online

Registration: <https://blog.uvm.edu/cwcallah/scrub-events/>

Session Dates and Topics:

- September 15: Wash/Pack Floors
- September 22: Wash Water Management
- September 29: Tools for Employee Management and Empowerment
- October 6: Bubblers/Aerators for Greens Washing

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Vegetable Notes. Genevieve Higgins, Lisa McKeag, Susan Scheufele, Hannah Whitehead co-editors. All photos in this publication are credited to the UMass Extension Vegetable Program unless otherwise noted.

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