Crop Conditions

Growers are scrambling to get tender crops, including the last of their winter squashes, harvested before the forecasted frost this weekend. It was a great run for peppers and tomatoes, which, without protection, will probably not survive a hard frost. Other crops to cover include: cucumber, edible beans, eggplant, muskmelon, okra, pepper, pumpkin, summer/winter squash, sweet corn, sweet potato, tomato, and watermelon. We found this factsheet from Missouri Cooperative Extension on frost and freeze damage to be very informative, here is an excerpt:

A frost occurs when air temperatures dip to 32 degrees Fahrenheit or lower at ground level. With a frost, the water within plant tissue may or may not actually freeze, depending on other conditions. A frost becomes a freeze event when ice forms within and between the cell walls of plant tissue. When this occurs, water expands and can burst cell walls like cracks in Michigan roads in January. However, some plants have more room to spare in their tissues and can withstand a certain amount and duration of internal ice formation without serious injury. However, when freeze damage occurs, it is irreversible.

We held the first twilight meeting last night in our series all about agricultural water—thanks to all who spent the evening with us. We covered how new weather patterns related to climate change will likely lead to greater need for irrigation and increased competition for fresh water available for agriculture in the Northeast, likely requiring states and towns to revisit their regulations related to water use and farmers to have better access to information and technology to help them use and monitor this important resource more efficiently. The conversation felt particularly relevant with this season’s prolonged drought, but even in predominantly wet years, there are notable dry periods. “I just feel like growers need to be prepared to irrigate every crop they have in the ground every year” said Tim Wilcox from Kitchen Garden Farm, who presented on his farm’s irrigation systems. A recording of the program will be posted on our website. The next installment in the series is Wednesday, September 23rd. Phil Tocco from Michigan State Extension will do a fun and interactive walk-through of a water system inspection and Scott Monroe from Purdue University will tell you all about understanding microbial water test results—see the events section of this issue for more details and registration link. Hope to see you there!
heads, and leafy greens making them unmarketable. Natural enemies can suppress cabbage aphid populations, but may not be able to prevent high densities that often occur in cool fall weather. Cabbage aphids lay eggs in the late-fall and overwinter as adults and eggs, so cultural controls include soil incorporation of crop residues immediately after harvest or, for overwintering brassicas, before eggs hatch in spring. Use selective products when controlling other pests to conserve beneficials. If CA is a consistent problem, systemic insecticides used at planting or sidedress may eliminate early infestations. Scout weekly to determine % infested plants, starting before harvested portions of the plant form. Treat if >10% of the plants are infested with aphids, especially after heads or sprouts begin to form. Or select 10 leaves at 10 sites for 100 leaves per field, and treat if >20% have aphids. Coverage of all leaf surfaces, buds and new growth is key. Waiting until there are heavy outbreaks or until just before harvest makes it hard to prevent loss of marketable yield. Movento was particularly effective in one cabbage trial, and Fulfill and Beleaf are also highly effective and specific aphid materials – all three have helpful translaminar or systemic activity. Alternatives include Assail and Admire Pro/generic spray. Include a nonionic surfactant (wetting agent) and verify that the material adheres and doesn’t roll off during application. Organic growers can use M-Pede or a horticultural oil (SuffOil-X, Sunspray Ultra-Fine) and/or azadiractin; we suggest a tank-mix of azadiractin and M-Pede. When using M-Pede, a spreader-sticker is not needed (and label prohibits) because the product has surfactant qualities itself.

**Caterpillars** are tearing through untreated brassica fields now. All four species are present and egg-laying continues so it is important to continue to scout brassica fields and be prepared to make multiple sprays, unless systemic materials (e.g. neonicitinoids or diamides) are used. Treat plants between the start of heading and harvest if 20% or more of the plants are infested. The most critical time to scout and apply chemical controls is just prior to head formation. Use a 10% to 15% threshold throughout the season for kale, collards, mustard, and other leafy greens.

**Cabbage root maggot** are generally active this time of year where they can affect marketability of brassica root crops like radishes, turnips, and rutabagas. Yellow sticky cards placed near brassicas capture adult flies, which are delicate, hump-backed, gray-brown, and have long legs—they about 5 to 7 mm in length. Insecticides generally are not labeled for root maggots on root crops, row covers and netting can be used to exclude the adult flies if placed ahead of time and weather conditions allow. If a fall planting is badly infested, incorporate and disk brassica crop residues after harvest to expose and kill pupae, and plan to rotate spring crops far from the affected field.

**Root crops**

**Carrots and beets** are at risk for developing leaf spots and blights including *Alternaria*, *Cercospora*, and others. Use cultural practices that minimize periods of leaf wetness such as plant spacing, planting in the direction of prevailing winds, and avoiding overhead irrigation. Promptly incorporate plant debris after harvest to speed decomposition. Preventive sprays may allow for crops to reach marketable size and be marketed with their tops. Several fungicides are labeled in the carrot and beet disease sections of the New England Vegetable Management Guide. Importantly, there are also a few bacterial leaf diseases in these crops, which these fungicides would not be effective in controlling-getting a sample diagnosed may be wise.

**Sweet corn**

Corn earworm and fall armyworm numbers have increased again in monitoring traps. Corn that is being sprayed is clean though, and growers are picking through their last fields. This is our last sweet corn report for the season, thanks to all the farmers and scouts who helped us gather the data we shared here, setting out traps, checking them weekly, changing lures, and reporting their numbers for the benefit of all sweet corn growers across the state!

The pattern of sweet corn caterpillar pests was a familiar story this year, but the drought presented new challenges for growers and, on many farms, corn stand and ear quality were severely affected. Some fields didn’t germinate properly or had uneven growth, many acres had to be abandoned because they couldn’t be watered, and in many cases harvested ears did not size up or fill properly. Demand was high though and prices were good.

**European corn borer:** As usual, ECB was the main corn pest early in the season, with peak flight of the first generation occurring in late-June and initiating folks’ spray programs. Iowa strain numbers remained low throughout the season, with the New York strain representing the bulk of trap captures. For several weeks, many farms reported low ECB trap captures but significant damage in the field, implying that the pheromone traps were not effectively giving us a picture of the population present. This year, corn scouting networks in nearby states began successfully trapping a new hybrid NY-IA strain of ECB that is not attracted to either individual lure. The presence of this hybrid may explain the discrepancy between trapping numbers and damage. Peak flight of the second generation occurred in early-August,
by which time CEW had arrived and was driving spray schedules in most locations.

**Corn earworm** adults began to arrive in late-June. Trap captures remained low through July and the recommended spray interval was 6 days or longer. The population for the remainder of the season was dictated by the 2 tropical storms, Isaias and Laura, that moved up the coast, with Isaias bringing a flush of CEW in mid-August and Laura bringing another late flush in early-September. CEW is still active now; corn that is silking now is still susceptible to damage.

**Fall armyworm** followed a similar pattern to CEW this year, with population peaks occurring after both Hurricanes Isaias and Laura. Larvae were found causing damage in whorl-stage corn that had not been sprayed for CEW, emphasizing the importance of scouting corn at all stages. As with CEW, FAW moths are still being captured so the potential for damage is still out there.

**SOIL ACIDITY & LIMING: FALL IS THE BEST TIME TO LIME**

As more and more crops come out of fields and the fall progresses on, many growers may be thinking about applying lime to their fields to raise soil pH or keep pH in an optimum range. Fall is a great time to lime fields, since it allows time for it to react in the soil and improve your fields for spring planting. If you haven’t already, take a soil test to determine the pH of your soil, and the amount of lime you may need to reach your target pH. For information on taking soil tests, see our [Fall Soil Testing article](#).

**UMass Soil Testing Lab Note:** With COVID restrictions and the recent retirement of the Soil Lab manager, Tracy Allen, (thank you Tracy, for all of your hard work and insights over the years! We will miss you!), the lab is offering only routine soil analyses and particle size analyses. Routine soil tests are meant for field soil only. Soilless media/potting mix, including that used for container growing in greenhouses or rooftop gardens, requires a different test, which the UMass Soil Lab is not currently offering. The soilless media test is also recommended for quick-growing high tunnel crops like tomatoes,
since it captures nutrients that are readily available to crops rather than nutrient reserves. Soilless media tests are currently available from the UMaine and Penn State soil labs.

**Soil pH.** One of the most important aspects of nutrient management is maintaining proper soil pH, which is a measure of soil acidity. A pH of 7.0 is neutral, less than 7.0 is acidic, and greater than 7.0 is alkaline. Most New England soils are naturally acidic and need to be limed periodically to keep the pH in the range of 6.5 to 6.8 desired by most vegetable crops. Scab-susceptible potato varieties are an exception but, even then, some lime may be needed to maintain the recommended pH of 5.0 to 5.2. When the soil is acidic, the availability of nitrogen, phosphorus, and potassium is reduced, with only 77% of nitrogen and potassium available and 48% of phosphorous available at a pH of 5.5. There are also usually low amounts of calcium and magnesium in acidic soils. Under acidic conditions, most micronutrients are more soluble and are therefore more available to plants. Under very acidic conditions aluminum, iron, and manganese may be so soluble that they reach toxic levels. Soil acidity also influences soil microbes. For example, when soil pH is low (below 6.0), bacterial activity is reduced and fungal activity increases. Acidic soil conditions also reduce the effectiveness of some pesticides.

**Active and reserve soil acidity.** To manage soil acidity, growers can apply a basic (compared to acidic) material. The most commonly used material is agricultural limestone, which comes in the form of calcitic lime and dolomitic lime.

The speed with which lime reacts in the soil is dependent on particle size and distribution in the soil. Finely ground materials react more quickly than coarse materials. To determine fineness, lime particles are passed through sieves of various mesh sizes. A US Standard 10-mesh sieve has 100 openings per square inch while a 100-mesh sieve has 10,000 openings per square inch. Lime particles that pass through a 100-mesh sieve are very fine and will dissolve and react rapidly (within a few weeks). Coarser material in the 20- to 30-mesh range will react over a longer period, such as one to two years or more. Agricultural ground limestone contains both coarse and fine particles. About half of a typical ground limestone consists of particles fine enough to react within a few months, but to be certain you can obtain a physical analysis from your supplier. Super fine or pulverized lime is sometimes used for a “quick fix” because all of the
particles are fine enough to react rapidly, but these fine materials can be difficult to spread and are usually more expensive than coarser materials. Pelletized lime is also an option; this is pulverized lime that is re-formed into pellets. Pelletized lime reacts more quickly than ground lime and is easier to apply than pulverized lime. Pelletized lime products include ingredients that bind the powdered lime together; some binding products are not OMRI-approved, so be sure to check this if you are a certified-organic farm.

Most growers apply lime to fields in the fall. This gives the lime as much time as possible to react in the soil over the fall, winter, and spring, before the next year’s crops are planted. For many, fall is also the time of year when time allows for this activity, and spreading in the fall also means you can avoid driving over wet fields in early spring. It can take months or years for all of the lime to react in the soil, so the timing of liming isn’t a huge dilemma; whatever you can put down at whatever time will have an effect in the long run.

Lime will react most rapidly if it is thoroughly incorporated to achieve intimate contact with soil particles. This is best accomplished when lime is applied to a fairly dry soil and disked in (preferably twice). When spread on a damp soil, lime tends to cake up and doesn’t mix well. A moldboard plow has little mixing action; disking is therefore preferred.

Besides neutralizing acidity and raising soil pH, lime is also an important source of Ca and Mg for crop nutrition. It is important to select liming materials based on Ca and Mg soil content with the aim of achieving sufficient levels of each for crop nutrition. If the Mg level is low, a dolomitic lime (high magnesium lime) should be used; if Ca is below optimum a calcitic (low magnesium lime) should be used. If soil pH is high and Ca is needed, small amounts can be applied as calcium nitrate fertilizer (15% N, 19% Ca). Ca can also be supplied without affecting pH by applying calcium sulfate (gypsum) which contains 22% Ca or superphosphate (14% to 20% Ca).

--Adapted by Genevieve Higgins in 2020 from the 2016-17 New England Vegetable Management Guide

IDENTIFYING DISEASES OF CARROTS

Carrots are becoming a more important crop for many growers, as folks look to increase winter sales in expanding year-round markets. Carrots can be affected by many bacteria, fungi and nematodes in the field and also while in storage. Foliar diseases may cause lower yields due to loss of photosynthetic ability, difficulty in harvest if the tops are weakened, and lower marketability if the carrots cannot be sold in bunches. Root diseases can lower yields of fresh eating carrots and can spread in storage, drastically reducing yields sold through later markets. Root diseases are caused by soil-dwelling organisms and therefore their incidence may vary considerably from farm to farm or even from one side of the field to the other. Proper disease identification will help you to prevent future outbreaks by adjusting crop rotations accordingly, and prevent moving infested soil from field to field. Some of the major carrot disease symptoms are described below.

If you are noticing foliar or root symptoms like those described, send a sample to your state diagnostic lab to confirm, and take steps to protect current and future crops. See the UMass Diagnostic Lab website for their sample submission instructions.

Foliar Diseases

**Alternaria Leaf Blight** (*Alternaria dauci* and *A. radicina*) symptoms first appear along leaflet margins as greenish-brown, water-soaked lesions which enlarge, turn brown to black, and often develop a yellow halo. Older leaves are more susceptible to infection. When about 40% of the leaf is infected, the leaf yellows, collapses, and dies. Lesions on petioles are also common and can quickly kill entire leaves. *A. radicina* can also produce a dry, mealy, black decay known as **black rot on carrot roots** held in storage.

**Bacterial Leaf Blight** (*Xanthomonas campestris* pv. *carotae*) symptoms appear primarily on leaf margins as small, yellow, angular leaf spots which expand, turn brown to black with a yellow halo, and become dry and brittle.

--Adapted by Genevieve Higgins in 2020 from the 2016-17 New England Vegetable Management Guide
Leaflets may become distorted and curled. Symptoms can extend into petioles where they produce a yellow-brown, gummy exudate, and may also occur on flower stalks. Infected umbels can be completely blighted and seed infection can occur—use treated seed to prevent introducing this disease.

**Root Diseases**

**Root Knot Nematode** (*Meloidogyne hapla*) forms galls or root thickenings of various sizes and shapes. Growth of infected carrots is patchy and uneven and severely infected carrots exhibit forking, galls, excessive hairiness, and stubby roots. Where soil populations of *M. hapla* are high, symptoms include stunted plants, uneven stands, premature leaf death, and branches and swellings on both lateral and tap roots. Marketable yield is reduced by deformities, size reduction, branches, and knobs. *M. hapla* persists in the soil and has a very wide host range so rotation can be difficult, but grasses are non-hosts so small grains and corn and bean can be grown in rotations to reduce the size of the population.

**Black Root Rot** (*Thielaviopsis basicola*) occurs primarily in storage when conditions are not ideal and temperature and humidity are too high. The fungus causes superficial, irregular black lesions which occur in a random pattern. The discoloration, caused by masses of dark brown to black chlamydospores, is limited to the skin. The pathogen rapidly invades wounded tissue and is favored by long post-harvest periods without cooling, so careful harvest and immediate cooling (< 41°F) and storage can minimize disease impact.

**White Mold** (*Sclerotinia sclerotiorum*) affects many vegetable crops but carrots are particularly susceptible, especially late in the season and during storage. The fungus may be present in soil, storage areas, or containers. Symptoms include characteristic white mycelial growth and hard, black sclerotia (long-term survival structures), which may be seen on the crown of infected carrots. In storage, the disease is characterized by a soft, watery rot with fluffy white mycelia and black sclerotia present. Sclerotia can persist in soil for many years and the fungus has a very wide host range, making this disease difficult to manage. Grasses and onions are non-hosts that can be used in rotations, and a commercially available biocontrol product, Contans, has been shown to be effective in parasitizing overwintering sclerotia. Contans should be incorporated into infested soils in the fall to give the biocontrol fungus time to infect the sclerotia.

**Cavity Spot and Root Dieback** (*Pythium* spp.). Infections from *Pythium* spp. can occur during early root development and are favored by moist soil conditions. Root dieback symptoms appear as rusty-brown lateral root formation, or forking and stunting; symptoms that can be easily confused with damage from nematodes, soil compaction or soil drainage problems. Cavity spot often shows up later in the season near harvest. Horizontal, sunken lesions varying in size from 1 to 10 mm appear on the surface of the root and can provide an ingress for secondary fungal or bacterial infections.

**Crown Rot** (*Rhizoctonia carotae*). Early symptoms are horizontal dark brown lesions around the root crown. As the crop matures the tops may die in patches in the field and as the disease progresses lesions join to form large, deep, rotten areas on the crown of the root. *R. carotae* can also cause crater rot and violet root rot, but these diseases are less common in MA. Crown rot is favored by moist conditions, so planting on raised beds and/or in well-drained fields can minimize disease inci-
Scab (*Streptomyces* spp.) can cause both raised and sunken, dry, corky lesions on the carrot root. This disease is less common and when it does occur symptoms are rarely severe enough to cause major losses in yield or marketability. Avoid planting carrots in alkaline soils, which are known to favor the incidence of scab, or in potato fields with high incidence of scab, as the disease can be caused by the same organism in carrots.

**Bacterial Soft Rot** (*Pectobacterium carotovorum* subsp. *carotovorum*) is a common disease in storage where it infects roots that previously wounded or diseased. It occurs in the field only rarely, under extremely wet soil conditions. Symptoms start as small water-soaked lesions that quickly spread and cause affected areas to become mushy, though the skin may remain intact over the liquefied flesh underneath. To avoid problems in storage, avoid wounding carrots during harvest and washing and maintain proper storage conditions.

To avoid losses in storage, try to achieve optimum storage conditions of 32 to 34°F (essential to minimize decay and sprouting during storage) and high relative humidity (required to prevent desiccation and loss of crispness). Mature topped carrots can be stored for 7 to 9 months at 32°F with 98 to 100% RH. Those ideal conditions are difficult to achieve and topped carrots are often successfully stored for 5 to 6 months at 32 to 41°F with 90 to 95% RH. Prompt cooling of harvested carrots (< 41°F) also helps maintain crispiness. Carrots produce very little ethylene (a byproduct of respiration) themselves but are sensitive to ethylene produced by other crops in storage and exposure causes production of the bitter compound isocoumarin, which is greatest in the peel—peeled carrots are not affected. Unless outside temperatures are very low or very high, ventilation is an inexpensive method of reducing ethylene levels. Ethylene can also be absorbed on commercially available potassium permanganate pellets.

---Written by Susan B. Scheufele, UMass Extension

**Postharvest Handling and Storage Basics**

Harvested vegetables are living things that carry on the process of respiration and other biological and chemical processes even after they have been picked. How produce is handled after harvest will directly affect quality characteristics such as appearance, flavor, texture, and nutritional value. Attention to postharvest quality can increase repeat sales and support higher prices. Control of postharvest quality essentially comes down to limiting respiration rate (lowering temperature), controlling water loss (maintaining proper relative humidity), minimizing physical damage to the product (harvesting and handling with care), and avoiding contamination (handling, washing, and storing appropriately).

**Limiting Respiration.** Respiration is a temperature-dependent biochemical process that converts carbon (mainly sugars) in plant tissue to carbon dioxide (CO₂) and water (H₂O) while producing some heat. Rates of respiration vary by the crop (see Gross 2016 Table p. 7 and pp. 68-75), and should be taken into account when sizing cooling equipment. Fortunately, we can significantly reduce respiration, and therefore maintain high product quality, by reducing product temperature (precooling) and keeping it low (holding or storage cooling). This concept is known as establishing the “cold chain”—a chain of reduced temperature that connects the field to the consumer, ensuring the highest quality produce possible by minimizing respiration.

From the moment of harvest, product quality will deteriorate. Intentional pre-cooling of produce directly after harvest helps quickly reduce the rate of respiration and initiates the cold chain. Examples of precooling include scheduling harvest activities at cooler times of day, shading harvested product in the field prior to transport, forced air cooling through the packed product with refrigeration, hydrocooling with cool water, and vacuum cooling via evaporation. Once cooled to storage temperature, reliable, refrigerated storage is necessary to maintain high quality.

It is important to note that not all crops can be cooled to the same temperature without resulting in cold or freeze injury and some crops are sensitive to the method of cooling. Crops have different susceptibility to chilling or freeze injury
depending on their physiology. Good guidance is available (see Gross 2016, pp. 62-67) and is summarized in Table 16 of the New England Vegetable Management Guide. Common precooling methods are also noted in Table 16. Additionally, a computer-based crop storage planner is available for determining appropriate grouping of your crops and estimating overall respiration load (see Callahan 2016). Chilling injury is also an important consideration when considering particularly sensitive fall-harvested crops, e.g. winter squash, and the possibility of lower nighttime temperatures. Notes on chilling injury guidance for these crops are provided in the appropriate crop chapter of the NE Vegetable Management Guide and in the references noted above.

Controlling Water Loss. The control of water loss requires careful attention to the relative humidity (RH) of the air surrounding stored product in addition to temperature. RH is a measure of the amount of water vapor in air compared to the maximum amount that can be saturated in that air at a given temperature. Most, but not all, crops are ideally stored at higher RH to prevent water evaporation into the air leading to water loss. The loss of water reduces the weight of the crop and also can lead to lower quality and poor appearance.

Some crops, such as onions, garlic and winter squash, are purposefully “cured” or dried resulting in drier outer skin and cured harvest wounds to allow for long term storage. Because this results in a paper-like layer, these crops are generally stored at lower RH to prevent development of postharvest disease such as molds and fungi on this outer skin. Other than these examples, most crops are best stored at 90-95% RH with specific guidance provided in Table 16, in the crop storage planner noted above, and in the literature (see Gross 2016).

Minimizing Physical Damage. Generally speaking, produce crops live a very gentle life until harvested. Starting with harvest, produce is moved and handled for the first time and, typically, many times after. With each movement there is a risk of physical damage. Even if the damage is not obvious, it can result in bruising or other damage that becomes evident later and can lead to postharvest disease and infiltration by pathogens, which are encouraged by damaged cell tissue. Even during harvest, crops can suffer “harvester blight.” For the majority of crops, gentle handling, crates with smooth and clean surfaces, and conveyance with elastic and soft belts and rollers is recommended.

Avoiding Contamination. Sorting and culling are also important practices at this stage. As the saying goes, “one bad apple can ruin the bunch”. Sorting allows for different sizes and grades of product to be stored and sold separately, and culling can separate damaged or lower quality product from the main lot for sale, rescue donation or compost depending on the defect. The removal of obviously damaged product from the lot helps minimize cross contamination with postharvest pathogens to a larger portion of the population.

Produce can be rinsed to remove soil and debris, and often a sanitizer is added to the rinse water to prevent cross-contamination of plant and human pathogens from one item of produce to another in the same batch (see the following references: LaBorde, Samuels, and Stivers 2016, Bihn et al. 2014).

Once packed and ready for storage or transport, care should be taken to avoid contamination of product with other contaminants such as foreign matter and unintentional water such as condensate from refrigeration systems.

References


NEWS

SIGN-UP TO HEAR ABOUT UVM EXTENSION WIREWORM IN ROOT CROPS RESEARCH

The University of Vermont is currently conducting a NE-SARE funded research project to explore innovative tactics for wireworm control in root crops. This project will look to help growers advance their knowledge of wireworm ecology and test new low-input management tactics.

To participate in the educational program and/or receive more information on this project including details and dates for upcoming informational sessions, webinars and presentations, please use this online form to share your contact information with us: https://forms.gle/ksJ16uBoZuQQvAeM8

NEW ENGLAND VEGETABLE MANAGEMENT GUIDE AND NORTHEAST VEGETABLE AND STRAWBERRY PEST ID GUIDES AVAILABLE FROM THE UMASS EXTENSION BOOKSTORE

Sales of both Guides were suspended in March because of the COVID-related campus closure, but the UMass Extension Bookstore is once again selling hard copies of these important resources. The Guides and other Extension publications can be purchased from the online bookstore at https://umassextensionbookstore.com. The searchable online version of the Vegetable Guide as well as a pdf version of the Pest ID Guide can always be accessed here: https://nevegetable.org/.

NORTHEAST SARE FARMER GRANT APPLICATIONS DUE NOVEMBER 7

Northeast SARE’s Farmer Grant Program provides research funds directly to farmers who have an innovative idea they want to test using a field trial, on-farm demonstration, marketing initiative, or other technique. Farmer Grant projects should seek new knowledge other farmers can use and address questions that are directly linked to improved profits, better stewardship, and stronger rural communities.

A technical advisor—often an extension agent, crop consultant, other service professional or farmer with advanced expertise—must also be involved.

Projects should seek results other farmers can use, and all projects must have the potential to add to our knowledge about effective sustainable practices.

Grants are capped at $15,000 and projects can run up to two years.

Online submission system opens October 1, and applications are due November 7. For more information, please visit the Northeast SARE Farmer Grant Program website.

2020 GRANTS & INCENTIVES FOR NORTHEAST AGRICULTURE

Farm Credit East has created a report which contains grants and other incentives available in the Northeast states of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York and Rhode Island. The listings include grant programs, tax incentives and loan programs from various funding sources available to agricultural producers and other entities involved in agriculture or related industries. Please note that as grant programs often change, this list should not be viewed as a comprehensive compilation of all grant opportunities.

Please visit link for Report, as well the grant writing page for more information on FCE’s grant writing services.

EVENTS

UMASS VEGETABLE PROGRAM: AGRICULTURAL WATER TWILIGHT SERIES

The UMass Extension Vegetable Program is offering a series of online twilight meetings all about water! We will welcome Extension specialists and farmers from Massachusetts and beyond to cover a range of water-related topics.

Part I: Water Use Regulations, Water Monitoring Tools, and Efficient Irrigation Wednesday, September 16, 2020

Speakers:
• Rachel Schattman, UMaine Agroecology Lab - Water use regulations in New England
• Joshua Faulkner, UVM Extension – Moisture monitoring technologies and irrigation efficiency
• Tim Wilcox, Kitchen Garden Farm, Sunderland, MA – Tile drainage, wells, and irrigation equipment

The recording of this webinar will be posted soon!

**Part II: Water System Mapping and Water Testing for FSMA**

**Wednesday, September 23, 2020 - 6:00pm to 7:30pm**

Speakers:
- MDAR Produce Safety Inspection Program - Massachusetts’ draft produce safety regulations and update on water testing rules
- Scott Monroe, Purdue Extension - Water sampling, understanding risks to source water and understanding water test results
- Phil Tocco, MSU Extension - Water distribution system mapping and inspections

Register here: https://umass-amherst.zoom.us/meeting/register/tJMvde2hrDspHtIxtBWDbCc75aHup0t6Z4aR%C2%A0

**Part III: Post-harvest Water Quality and Sanitizer Use**

**Wednesday, September 30, 2020 - 6:00pm to 7:30pm**

Speakers:
- Amanda Deering, Purdue Extension - Background on the different sanitizer materials available or practical for small-medium scale growers and how to measure and monitor them
- Phil Tocco, MSU Extension – Sanitizer use demonstration

** 1 pesticide recertification credit is available for this program **

Register here: https://umass-amherst.zoom.us/meeting/register/tJErcOCqrTWiGNaUN7Sn79DyZeq0zMI6tma%C2%A0

**UMASS FOOD SCIENCE WEBINARS FOR PRODUCE PROCESSORS**

**Freezing Produce for a New Market**

Wednesday, September 30, 5:30 pm to 7 pm

This webinar is targeted to producers and processors that are interested in expanding into frozen retail produce markets. This 1.5-hour webinar will share the lessons learned in the work conducted to determine new market channels for local producers processing frozen produce for retail. The collaborating team includes food scientists and resource economists from UMass Amherst and the team at the Greenfield Community Development Corporations Food Processing Center. During this session we will share the interdisciplinary work that includes market research, process optimization, food safety plan management, cost and return analysis, and newly developed extension materials. Register here.

**Preventive Controls Practical Implementation Workshop**

Offered on 3 separate dates:
- Thursday, September 24, 1 pm to 4 pm
- Wednesday, October 21, 9 am to noon
- Thursday, November 12, 2 pm to 5 pm

This 3-hour online workshop will expand on the key components of a PC-compliant food safety plan, and provide resources of where/how to initiate a food safety plan that is specific for small and medium processors. Register here.

**Midwest Mechanical Weed Control Field Day**

The 4th Annual Midwest Mechanical Weed Control Field Day will be virtual this year, giving Northeast growers an opportunity to attend! Organizer Sam Hitchcock Tilton and participating farmers will share tips and insight into mechanical cultivation.

When: This event will include three episodes. September 11, 18, and 25, 1:30-2:15pm EST

Click here for more information about each episode and for registration.