UMass Extension
Vegetable Notes
For Vegetable Farmers in Massachusetts since 1975

Volume 27, Number 4 April 16, 2015

In this issue:

Crop conditions

The last two weeks have finally begun to feel like spring, and growers are anxious to get out into the fields as soon as they are warm and dry enough to work. Overwintered greens grew much more slowly this year, and some spinach crops are just ready to harvest, while others are finally ready to turn under and make way for spring crops. One grower who overwintered spinach and onions in double-layered low tunnels this year reported excellent results despite the rugged winter. Her overwintered low-tunnel spinach yields were high (one pound per 6ft. row) but she cautioned: be sure to replace the row cover to prevent windburn on those tender leaves! Caterpillar tunnels are coming down or transitioning to spring crops. The first greenhouse crops are going in: cucumbers, tomatoes, peppers. Farmers are definitely getting a late start this year with some growers just making it into their field this week for the first time to plant peas, carrots or lettuce and removing the mulch from strawberries. Fertilizing and sub-soiling has begun in lighter soils for planting potatoes. One farmer pushed back his entire planting schedule by 10 days this year. Soil temperatures and growing degree days are a good indicator of our delayed spring as compared to last year. Soil temperatures at the UMass Agronomy and Vegetable Research Farm in South Deerfield are hovering around 45°F at 3in. and 44°F at 8in. in bare ground whereas last year on April 20th the same field was, 52°F at 3in. and 48°F at 8in. If you have delayed your plantings or have noticed a poor cover crop stand this spring and will have bare fields until June, consider planting an oat and pea spring cover crop. Sow the peas at a rate of 100-120 lbs/A and the oats at 70 lbs/A. Incorporate the cover crop when oats are heading and before seed set which should be around mid-June. Record snow fall and melt this year is affecting some farmers along the Connecticut River who are experiencing some minor flooding. In Northampton, the river level is at 110ft. with 112ft. considered a flooding stage. Luckily the dense snowpack melted gradually and we escaped much potential flooding, but in northern New England there is still some snow on the ground which will continue to melt and drain into rivers over the next few weeks.

Cladosporium leaf spot of spinach has been confirmed in a few locations in Western MA. The small, light, discrete spots may develop chocolatey-brown, velvety sporulation under moist conditions.

Plant diagnostic clinic update

Bess Dicklow Retires

Bess Dicklow retired from the University of Massachusetts after 28 years. Bess was the plant disease diagnostician at the

UMass Extension Plant Diagnostic Laboratory.

Bess Dicklow recieves the Robert E. Young Award for service to the vegetable industry this year from David Tuttle, President of the New England Vegetable and Berry Growers Association

Bess graduated from Cornell University in 1982 with a MS in Plant Breeding and a minor in Plant Pathology. After a short stint at the New York State Agricultural Experiment Station in Geneva, NY, she returned home to Massachusetts and started at UMass in 1986. Bess first worked in the biological control of plant parasitic nematodes in turfgrass and then, in 1996, she began to work with Dr. Rob Wick who taught her the art and science of plant problem diagnostics and she became the state diagnostician. In 2005, floriculture, turf and vegetable diagnostics were merged with the Urban Forestry Diagnostic Lab and Bess organized the present UMass Extension Plant Diagnostic Lab. She also began extensive work with the National Plant Diagnostic Lab, Northeast Region and participated in First Detector training and the rapid detection and reporting of exotic, invasive plant diseases. Bess was an excellent writer, and contributed innummerable Extension factsheets and articles to Vegetable Notes and other newsletters. She also edited the disease sections of the New England Vegetable Management Guide, and edited hte Vegetable Best Management Practices documents.

We will miss Bess and the expertise she brought to the growers, helping them to diagnose their plant problems and provide education on plant disease biology and management.

Angie Madeiras, New Plant Disease Diagnostic Technician Hired

Farmers may continue to submit samples to the UMass Extension Plant Diagnostic Laboratory with assurance that their samples will be diagnosed in a timely manner by our new technician, Angie Madieras. A native of Massachusetts, Angela Madeiras' love of agriculture began in her teenage years when she took a job on a vegetable farm. After earning her bachelor's degree in Biology at Smith College in 1998, Angie spent several years gaining experience in horticulture at a large retail nursery. She earned her Master's degree in Plant and Soil Science from UMass in 2007. As a masters candidate she discovered plant pathology, and began working part-time in the diagnostic laboratory. After completing a two-year project on fungicide resistance in *Colletotrichum cereale* with Nathaniel Mitkowski at the University of Rhode Island, Angie returned to UMass and began her PhD dissertation work on sooty blotch and flyspeck of apples with Dan Cooley. During this time she was a teacher's assistant in plant pathology and she also worked part-time in the Plant Diagnostic Lab. She finished her PhD in Plant Pathology in December of 2013. Since then Angie has held a post-doc position in Rob Wick's lab, investigating genetic diversity in *Peronospora belbahrii*, the causal agent of basil downy mildew. Angie lives in New Salem with her husband and two cats, and she is eagerly awaiting snowmelt so she can start digging in her garden. This year's gardening experiments will include artichokes, epazote, and blueberries.

See Angie's article in this issue about submitting irrigation water for testing plant pathogens. Angie may be contacted the following ways:

Phone: 413-545-3209.
Email: ammadeir@umass.edu
Website: http://ag.umass.edu/diagnostics

TESTING IRRIGATION WATER FOR WATER-BORNE PATHOGENS

Many vegetable growers must use sources of surface water for supplemental irrigation despite the risk that it may be contaminated with plant pathogens. While some bacteria and fungi can be found in irrigation water, species of *Phytophthora* are of particular concern. Streams, rivers, naturally fed ponds, and irrigation ditches

are susceptible to infestation with *Phytophthora* if there is a pathogen source nearby. Well-fed ponds are less prone to infestation, unless there is an agricultural field that drains into the pond; deep wells are highly unlikely to become infested. If you are concerned that your source for irrigation water may be harboring *Phytophthora* and you would like to have it tested, there are two methods for collecting samples for submission to the UMass Plant Diagnostic Lab. Either is sufficient for testing for *Phytophthora* spp..

Baiting Method.

Cucumbers, green tomatoes, or peppers may be used for baiting the pathogen out of water; in the absence of these fruits, apples or pears may be used. Immature fruit are preferable to ripe or overripe fruit, and all fruit should be free from wounds and blemishes, so that they will hold up in the water for a few days. Gently wash 2-3 fruit in tap water and place them in a plastic mesh bag such as the kind that onions are sold in. Tie a rope around the end of the bag and toss it out into the water. After 3 days, pull the bag out and examine the fruit for lesions. If there are none, the bag can be put back in the water and checked again every 1-2 days for up to 7 days. If there are lesions on the fruit, allow the fruit to air dry and either ship them immediately by next-day delivery, or bring in-person to the diagnostic lab, where they will be tested for *Phytophthora*.

The optimum water temperature for this method is 57-77°F. *P. capsici* may not be detected by this method if water temperature is outside this range. For best results, conduct this test in summer.

Water Filtration. Collect 300-500 ml water (1 pint to 1 quart) in a clean plastic bottle. Cap tightly and refrigerate if not shipping immediately. Ship next-day delivery or bring in-person to the diagnostic lab. This test can be conducted any time during the growing season. Keep in mind that if the contamination level is less than 1 or 2 spores per pint or quart, it is unlikely that it will be detected.

Preventing Contamination. Keep compost and cull piles far away from bodies of water used for irrigation. If you discover infected fruit or other plant material, dispose of it off site. For further information, see https://on-vegetables.files.wordpress.com/2014/04/2014_infosheet_irrigation-water.pdf

Sample Submission. Send all samples by next day mail. Please include a submission form, which can be found at http://ag.umass.edu/plant-problem-diagnostics/vegetable-floriculture-diagnostics. Laboratory tests may take several days to yield results.

UMass Extension Plant Diagnostic Lab
101 University Drive, Suite A7
Amherst, MA 01002
phone: (413) 545-3208
fax: (413) 545-4385
website: https://ag.umass.edu/diagnostics

Reference: *Biology, Detection, and Management of Plant Pathogens in Irrigation Water*. Hong, Moorman, Wohanka, and Büttner, Eds. APS Press, 2014.

--A. Madeiras, UMass Extension Plant Diagnostic Lab

COOL SOILS AND FRESH ORGANIC MATTER FAVOR SEEDCORN MAGGOTS

Seedcorn maggot (*Delia platura*) larvae feed on the seeds and young seedlings of a wide variety of vegetable crops. The first plantings of large-seeded crops such as corn, beans, and peas are often attacked, as well as early seedlings of spinach, onions, brassicas, tomato, cucurbits, and others. The first symptoms are usually poor germination or wilting of transplants that have lost their roots to feeding larvae. Symptoms can be difficult to distinguish from other problems, such as damping off due to *Pythium* and other soilborne fungi, or wireworm feeding. Symptoms may also be similar to damage caused by the cabbage or onion maggot, but seedcorn mag-

got becomes active two or more weeks earlier in the spring than do the other maggot flies. Prevention is key in managing this pest. By the time you see damage, it is too late to control the problem using either cultural or chemical methods.

If seedcorn maggots are the culprit, maggots can usually be found in the soil around and inside seedlings and seeds. The seedcorn maggot is yellow-white, up to 1/4 inch long, legless, and has a wedge-shaped head. Pupae are oblong, brown, and about 4-5mm long. The adults look like small, delicate houseflies with a slightly hump-backed shape. Seedcorn maggots overwinter as pupae in the soil where they had fed and developed the previous fall. In early spring, the adults emerge and lay eggs on the soil surface. They are attracted to volatiles released from freshly tilled soil, as well as to buried cover crop residues, rotting manure, compost, organic surface residues (as is found in reduced till), and other organic amendments such as fish, soybean or cottonseed meal. Previously injured or diseased plants may also attract egg-laying. The eggs hatch within 2-4 days at soil temperatures of 60°F, and 7-9 days at 41-45°F. Soil temperatures at the Agronomy and Vegetable Research Farm in South Deerfield are now 45°F. Maggots burrow downward in search of food and penetrate seeds as the seed coat splits open.

One reason for the early activity of maggot flies is their ability to develop at a lower threshold, or base temperature, compared to many other insects—39°F (4C) instead of the usual 50-55°F (10-13°C). Like other insects, they develop faster at higher temperatures, with optimal growth around 70°F (21°C). Emergence can be estimated using cumulative growing degree days, starting January 1st. Degree days can be calculated on a daily basis by using the formula: *[(Max temp – Min temp)/2] – base temperature*. To use GDD accurately, it is important to keep track of whether you are in Farenheit or Celsius, and to use a base temperature suited to the insect (or plant) of interest. Scientists have determined the accumulated GDD required for seedcorn maggot to reach peak adult emergence for first, second and third generation flies. This model is based on GDD accumulated since January 1st at base 40°F/4°C.

	First Generation	Second Generation	Third Generation
Fahrenheit Degree Days (FDD)	360	1,080	1,800
Celsius Degree Days (CDD)	200	600	1,000

Currently no locations in Massachusetts have reached 360 FDD but at the same time last year, most locations were at least 30 FDD ahead of this year. Growing Degree Days and soil temperature maps may be tracked at the Network for Environmental and Weather Applications (NEWA): http://newa.cornell.edu/

Accumulated Growing Degree Days (Base 40°F) January 1st-April 14th		
	2015	**2014**
Ashfield	56.2	88.0
Bolton	82.5	152.7
Dracut	80.9	142.0
Seekonk	92.7	277.6
Sharon	91.3	169.6
South Deerfield	60.6	135.5
Westfield	77.0	299.0

The second and third generation peaks may be variable for a number of reasons, including the ability of larvae to enter dormancy when it gets too hot. Thus it may not be easy to track the successive generations, but it is the first generation that causes the most damage. Crops that are planted in wet soil, or soil that is too cool to support quick germination and seedling growth, are especially susceptible to damage. Seedlings are sometimes able compensate and recover from seedcorn maggot injury, depending on: the number of larvae per plant, the crop (eg. cantelope is less able to recover than bean or corn), seedling size, and growth conditions. Conditions that favor crop emergence and growth help seeds and seedlings escape or recover from injury.

Management strategies:

- Avoid seeding fields (especially wet fields) too early. Seeds germinate more quickly and are less vulnerable in warmer soils. Be patient! Check soil temperatures and use forecasts to determine likely soil conditions for emergence.
- Disk and incorporate organic matter (such as a cover crop) at least 4 weeks before seeding to give it time to break down and make the field less attractive to the flies for egg-laying.
- Avoid applying manure or unfinished compost in late fall or early spring to heavy soils that you might want to plant early. Lighter, well-drained, sandy soils are less likely to have problems (because they warm up faster than others).
- Row covers can help – but only if the maggot flies are coming from elsewhere. Damage can occur if the flies have overwintered in the soil and thus end up underneath the row covers. Avoid covering seedlings that were planted into recently incorporated, lush cover crops.
- If you need to replant, wait at least 5 days if maggots that you find are a quarter inch long; if they are smaller than that, wait at least 10 days to make sure they have pupated and will not damage the new seeds.
- Preventive chemical treatments include commercially applied seed treatments (such as thiamethoxam) and in-furrow applications of pyrethroid, carbamate or organophosphate insecticides. For details, see crop/insect sections of the New England Vegetable Management Guide for corn, beans or other crops.

--R. Hazzard. Adapted from and with thanks to the following sources: E. Sidemann, Technical Advisor, Maine Organic Farmers and Gardeners Association; Ellen Cullen, University of Wisconsin Extension Entomologist (http://agwx.soils.wisc.edu/uwex_agwx/thermal_models/scm); J. Capinera, Handbook of Vegetable Pests.

SPRING SOIL FERTILITY FOR VEGETABLE CROPS

Testing your soil is essential for maintaining soil health and crop nutrition. Soil tests should be taken in the fall, if possible, to allow for time to plan crop rotations and fertilizer orders for the spring–and it helps that soil labs are less busy then too! Whether you took your test in the fall or early spring, it is best to take your standard soil tests at the same time each year. Either way, you are now likely reviewing and interpreting the results to make decisions about how to fertilize your fields at planting time, and how you may side dress crops during the season. In this article I will walk you through the steps of making spring fertilizer decisions.

Please Note! The UMass Soil Testing Lab has moved:

Hours of Operation: Monday – Friday, 8:00 a.m. – 4:00 p.m.

Soil and Plant Tissue Testing Lab
203 Paige Laboratory
161 Holdsworth Way
University of Massachusetts
Amherst, MA 01003

Phone: (413) 545-2311
Email: soiltest@umass.edu

Interpreting the UMass Soil Test Report. If you are using the UMass Soil Testing Lab, nutrient content is reported based on an optimum range (Fig. 1) wherein there is a low probability that adding fertilizer will increase crop yield. In fact, adding fertilizer when the soil levels are already optimum can result in reduced yields for some crops. These optimum ranges are determined for each crop based on research correlating crop growth response to varying soil test levels of each nutrient. For example, in 31 Vermont soils with a range of low to high soil test phosphorous (P) levels, research showed that if soil extracted P was between 4-14ppm, adding additional P did not increase yield in alfalfa–so this is one piece of data that is used in determining the optimum range of P (Fig.1). Results from similar research conducted throughout New England over the last 60 years provide the basis for the soil lab's interpretations. The UMass Soil Testing Lab recently acquired new phosphorous testing equipment, allowing them to provide better analysis of phosphorus levels and give recommendations that will help growers avoid excessive and environmentally harmful P levels in soil.

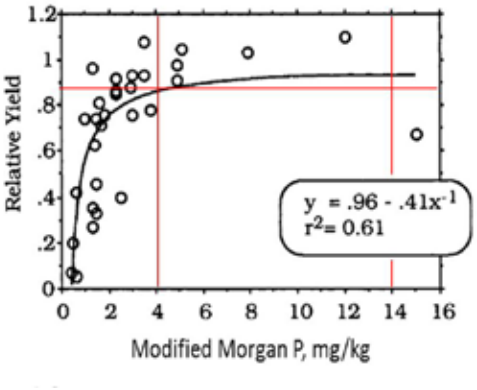

Figure 1. The Modified Morgan soil extraction is the standard method used by soil labs across New England and New York because it has been shown to better correlate crop response to soil nutrient levels than other extraction methods. This figure shows the correlation of extracted soil P in mg/kg to relative yield of alfalfa. The range between where the red lines intersect represents the optimum level of soil P, which is 4-14 mg/kg.

The 2014-2015 New England Vegetable Management Guide provides fertility recommendations based on the "Build and Maintain" philosophy, the goal of which is to fertilize up (or down in some cases) to the optimum level, and then adjust fertilization to stay at that range, taking into account the nutrients removed by the specific crop that will be planted into that soil. This is why it is important to provide a "crop code" when filling out your sample submission form. Nutrient removal rates are based on expected crop yields and should be adjusted up or down if different yields are expected. A table of approximate nutrient removal by selected vegetable crops may be found on page 11 of the Vegetable Management Guide.

Using Soil Test Recommendations to your Advantage. Once comfortable with interpreting the recommendations on a soil test report, there are still decisions to be made about fertilizer applications. Here are some tips for using the recommendations to your best advantage this spring.

Select crop codes when you submit your sample to the UMass Lab so that you get fertility recommendations tailored to the specific crop you will plant in that soil. Each UMass soil test allows you to select fertilizer recommendations for up to 3 different crops.

Consider different crop needs when taking soil samples, and when calibrating your fertilizer hoppers and spreaders to apply lime and fertilizers. Individual soil samples should be taken from fields or that differ in soil type, moisture, slope, or management. However, if you plan to plant several crops in one field that you might typically pool samples from, consider taking individual samples for each crop block to get the best test results and to help you when calibrating your fertilizer hoppers/spreaders

Estimate Plant Available Nutrients/Nitrogen (PAN) present in soil before making fertilizer applications in order to be economically and environmentally conservative with your applications. In general, for each percent organic matter in your soil you can assume 20-40 lb of N will be available for plant uptake this year, as long as soil conditions are around 70°F, pH 6-7, and there is adequate moisture. However, mineralization rates of nutrients into soil solution for plant uptake depend on: fertilizer source, soil type, compaction levels, moisture, temperature, and soil organic matter content. Even "slow-release" nitrogen fertilizers can become rapidly available in very sandy soils with spring rains and rising temperatures.

Consider cover crop contributions to soil fertility as you begin to prepare fields for planting. From "Estimating Plant Available Nitrogen Release from Cover Crops":

Legume cover crops provide up to 100 lb PAN/A. 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. 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.

Apply fertilizers to maximize availability to your crop. Depending on soil test recommendations and prior fertility additions, fertilizer may be applied to fields before planting, but applications are best made to a growing crop. Avoid broadcast applications to fields before a crop is planted; banding is better. Some cultivating tractors are fitted with fertilizer hoppers so that you can direct and incorporate applications right at the root zone. As a general rule of thumb, do not exceed 80 lbs/A of N and K at the time of planting to avoid excess salt build up. Here are some recommendations for applying macro nutrients at the time of planting:

Phosphorous: P does not move in the soil and should be mixed into the soil in the root zone to facilitate plant uptake. This should be done before planting or by banding at planting. P applied on the soil surface will be of no value until it is incorporated. Furthermore, plant uptake of P is extremely slow in cold soils (below 50°F). For this reason, when planting early into soils testing optimum or lower, it is often advisable to apply up to 30 pounds of P_2O_5 as starter fertilizer in a band about 2» below and 2» to the side of the seed when planting, or as a liquid around transplants. If soil test P levels are above 14 ppm, starter mixes high in P (e.g. 8-32-16) should be avoided.

Potassium: K should be incorporated into the root zone of the soil before planting or applied as a band at planting.

Nitrogen: Pre-plant application of N should be reduced or eliminated, if possible. It is more appropriate to apply a small amount of N (i.e. 20 lb/A) in a band at planting. Additional amounts of N, if needed should be top-dressed or side-dressed during the growing season when plants have an increased need. A pre-sidedress soil nitrate test (PSNT) taken when the crop is several weeks in the ground is helpful in determining if additional N is needed.

Save money on fertilizer applications.

Calculate fertilizer price/lb in order to avoid making costly applications. For example, if a 50lb bag of urea (64-0-0) costs $21 then the cost of N/lb is 65¢. A 50lb bag of 19-19-19 on the other hand, costs $26 or $2.74/lb for N, P and K each. If N is all you need, then urea is more economical in this case. Vern Grubinger of University of Vermont Extension has compared the cost per nutrient of various organic fertilizers based on NOFA VT bulk order rates. For example, Vern found that to provide N only, blood meal (12-0-0) is relatively expensive, at $77 per 50 lb the cost of N is $13/lb. Soy meal on the other hand (7-1-2, typically) can be purchased at $17 per 50 lb, an N cost of $4.86/lb. Here is a fertilizer calculator from the University of Georgia to help you do the math: http://aesl.ces.uga.edu/soil/fertcalc/

More Resources:

DuPont, T. *Determining Nutrient Applications for Organic Vegetables*. Pennsylvania State University Publication, September, 2011

Hitchcock, R. and Kissel, D.E. *Fertilizer Calculator*. University of Georgia Cooperative Extension Service

McCraw, D. and Motes, J.E. *Fertilizing Commercial Vegetables*. Oklahoma Cooperative Extension Service Publication, HLA-6000

Sanchez, ES and Richard, TL *Using Organic Nutrient Sources*. Pennsylvania State University Publication, UJ256. 2009

Sullivan, D.N. and Andrews, N.D. *Estimating Plant-Available Nitrogen Release from Cover Crops*. Pacific Northwest Extension Publication, PNW 636, November 2012

Sullivan, D.N. Andrews, N., Julian, J. and Pool, K. *Organic Fertilizer and Cover Crop Calculator*. Western Sustainable Agriculture Research and Education Projects FW06-301 and FW09-328.

University of Massachusetts, Soil and Plant Tissue Testing Laboratory *Fact Sheets*.

--K. Campbell-Nelson, UMass Extension

Events

Retail Greenhouse Pest Management Using Biological Control: "Retailer to Retailer"

When: Tuesday April 7, 2015 from 1:00 pm to 3:30 pm

Where: Volante Farms, 292 Forest St, Needham, MA 02492

Do you purchase plants from wholesale growers who use biocontrol to manage pests? Learn to continue the practice of managing pests using biological control in retail greenhouses. Limited space for this demonstration program, registration on a first come first serve basis. *Sponsored by the UMass Extension Greenhouse Crops and Floriculture Program*

3 pesticide credits category 26
Printable program and registration form

EPA Worker Protection Standard Train-the-Trainer Course for Organic and Non-certified Pesticide Users

Offered at 2 locations in Massachusetts:

When: Tuesday, April 21 from 9am to 1pm
Where: Brigham Hill Community Farm, 37 Wheeler Rd, North Grafton, MA 01536

When: Tuesday, April 28 from 9am to 1pm
Where: Brookfield Farm, 24 Hulst Road, Amherst, MA 01002

All farm workers should be trained in the EPA Worker Protection Standards (WPS). If your farm uses any pesticides, including those approved for Organic production, all employees MUST be trained in WPS by Federal law. This training must be delivered by someone who either has a license to apply *restricted-use* pesticides *OR* has completed a WPS train-the-trainer program.

UMass Extension is offering 3 half-day **formal WPS Train-the-Trainer courses** this spring. These programs are geared toward organic producers and other farmers who are not certified pesticide applicators, and may be unfamiliar with regulations and procedures for safe pesticide use and record-keeping.

After you leave this training, you will have the ability *and* authority to conduct both handler and worker trainings for your employees, as required by the EPA.

Contact Lisa McKeag at 413-577-3976 or lmckeag@umext.umass.edu for more information.

Farm Food Safety for Post-Harvest Handling and Small-Scale, Low-Cost Facility Design

When: Wednesday, June 17, 2015 from 2pm to 6pm

Where: Red Fire Farm, 184 Meadow Road, Montague MA 01351

This program will focus specifically on washing/packing facilities and low-tech & low-cost design for very small farms.

Topics will also cover wash water sanitizer usage, sanitizer level monitoring, and other aspects of post-harvest handling using farm food safety good agricultural practices. More information on registration, and other dates/locations for similar workshops will be available soon.

Contact Amanda Kinchla at amanda.kinchla@foodsci.umass.edu or 413.545.1017 for more info.

UMass Agricultural Field Day

When: Wednesday, June 24, 2015 9:30am-4pm

Where: UMass Crop and Animal Research and Education Center

Tour the farm and learn about the agricultural research projects happening this summer. Lunch included!

Projects will include but are not limited to:
Cover Crops in Potato Production
Dual-Purpose Cover Crops for Fall Nutrient Capture and Additional Forage Production
Production of Quality Malt Barley in New England
Hardwood Biochar Amendment of Agricultural Soils

Growing Mustard as a Biofumigant Cover Crop

Evaluation of Reduced Risk Pesticides for Cabbage Root Maggot Control

Contact Kelly Kraemer at kkraemer@umass.edu or 413-545-5221 for more information.

Vegetable Notes. Ruth Hazzard, Katie Campbell-Nelson, Lisa McKeag, Susan Scheufele, co-editors.