UMass Extension
Vegetable Notes
For Vegetable Farmers in Massachusetts since 1975

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UMass Student Farmers harvesting carrots
Photo: K. Campbell-Nelson

Crop conditions

It's all mud and squirrels out there! The higher-than-usual squirrel populations have been making local news across the region, and farmers have noticed squirrels chomping on pumpkins still in the field, devastating the remaining crop. Except for Cape Cod and islands, extremely wet weather (125-200% of normal precipitation for September) has been turning even the driest fields into puddles, stymying many farm activities including harvesting, turning over fields, and planting cover crops. Nonetheless, harvest of leeks has begun while bulk crops like potatoes, beets, carrots, and sweet potatoes are still rolling in. While it has been a bumper year for sweet potatoes, growers have noticed that the tubers they started to harvest in September were a good size, but those left in the ground through a few more rain storms bulked up quite a lot and are now too large for retail markets, unfortunately.

Growers are now focused on juggling all of their harvested crops, borrowing harvest bins to get them through the next few weeks as they move produce, and considering where everything will go for longer-term storage. While it has been a hard season for most, there's still a lot of gorgeous produce decorating shelves of every farm stand, market, and CSA, and consumers are flocking in with their typical New England fall fervor, and markets are good.

Preparing for the Fall Flight of Allium Leafminer

Written by Ethan Grundberg, Cornell Cooperative Extension
Adapted by Susan B. Scheufele for New England, 2018

The fall generation of allium leafminer (ALM) is active now and oviposition marks are now being seen on leek foliage across southeastern NY and likely in any other areas where this pest has become established. ALM affects all alliums but is especially damaging to fall leeks since there are few other allium hosts around and can cause serious losses at harvest and in storage. This new invasive pest was introduced from Europe into Pennsylvania in 2015 and has been found consistently in Pennsylvania, New Jersey, and New York since then. ALM was found for the first time in MA this spring, in the Berkshires.

Life Cycle: There is a spring generation of ALM which peaks in late-May, and then the pest is dormant until about this time of year when the adults re-emerge from pupation sites either inside allium bulbs and stems or in the soil where earlier onion plants had been. Though we do not have predictive models to help us determine the likely date of emergence of the fall generation, ALM adults emerged from pupae near the end of September in Pennsylvania in 2016 and were active for 4-6 weeks. This year scouts in southeastern NY first identified the fly on September 11th but only began to see widespread activity and oviposition scars this past week. Efforts are underway now throughout the Northeast to dial in on the pest's life cycle and determine exactly when these flights occur, you can help by reporting any signs to your local cooperative extension office or contacting us at umassvegetable@umass.edu or at (413) 577-3976.

Damage: Since there are typically fewer cultivated and wild alliums in the environment in the fall, growers have experienced a "concentration effect" with their fall allium crops. The spring generation of ALM is able to spread across a wider and larger host population, but since the fall ALM flight has fewer host plants (leeks, chives, and scallions) to choose from, the damage to those crops is more severe, with up to 80% crop losses reported in areas where this pest has established. Oviposition scars and feeding mines can affect marketability of the harvested crops because of cosmetic damage to the green foliage, but more importantly, these wounds also allow for entry of soft rotting bacteria into the bulb, and this leads to severe rot on the shelf or in storage.

Adult ALM oviposition marks on onion leaf. Photo: E. Grundberg

Management: Effective strategies for limiting damage from ALM this fall are to use row cover to exclude flies—ideally this would have already been done but it may not be too late—and to spray fields where the level of damage is unacceptable. Focus management efforts on alliums that still have lush green growth in the field (storage onions that are still field curing are not at risk) to prevent adults from landing on host crops. Insecticide efficacy trials are underway, and our current recommendations are limited to insecticides labeled generally for leafminers that can be used on alliums—Dan Gilrein of CCE-Suffolk County has reviewed these options and made them available at https://cdn.extension.udel.edu/wp-content/uploads/2012/03/01070448/Critical-Updates-for-2017-Mid-Atlantic-Vegetable-Recommendations-Guide.pdf. Organic growers unable to use row cover are encouraged to consider applying Entrust (spinosad, IRAC Group 5) at the 2 oz/acre rate along mixed with a 1%-1.5% v/v solution of M-Pede (potassium salts of fatty acids) for better penetration of the waxy cuticle once adult feeding has begun. Pay close attention to maximum application restrictions for each active ingredient if crops have already been sprayed with insecticides for onion thrips management this year AND to the labeled pre-harvest intervals. As always, you must follow the instructions in the label for all pesticides!

We suspect that the geographic distribution of ALM will continue to spread this fall, so growers in southwestern New England and especially in the Berkshires should be on the lookout for signs of activity. We are recommending that growers thoroughly inspect allium leaves for oviposition marks by checking at least 10 plants on each field edge weekly, from mid-September through October. If you have any questions about what you are seeing in your fall alliums, please contact us at umassvegetable@umass.edu or at (413) 577-3976.

ALM larval mining on scallions. Adult oviposition marks also visible on middle leaf. Photo: T. Rusinek

ALM pupae in leek. Note the soft rot in the larval mines. Photo: T. Rusinek

Potato Storage

Whether you're planning to store potatoes for one month or six, in pallet bins, grain sacks, or bulk piles, maintaining optimum quality depends on providing optimal storage conditions. This can be tricky; every crop is different, as are weather and harvest conditions each fall. It's important to know what conditions you are aiming for, even if you can't always achieve them in practice. Fortunately, potatoes are somewhat forgiving in their tolerance to less than ideal conditions. Light, temperature, humidity, and ventilation all need adjustment in potato storage.

Light: Darkness is key. Even modest amounts of low light cause greening, or the production of chlorophyll in potato skin. In addition to chlorophyll, potatoes produce a toxin called solanine in the skin when exposed to light. If potatoes are in a multi-purpose storage where lights are on often, or the room is not fully dark most of the time, cover the bins or

pile to keep out light, without cutting off ventilation. One solution is to use bulk bins with open bottoms, with black pallet wrap around the sides, and punched plastic row cover or burlap on top.

A conveyor-fed potato storage pile. Photo: R. Hazzard

Temperature: After harvesting and curing potatoes for storage (see September 6, 2018 issue of Vegetable Notes), tubers should be cooled down to the holding temperature. Ideally, the potatoes should be cooled slowly, ½ - 1° F per day, or a maximum of 4-5°F per week. Harvesting at temperatures closest to holding temperatures will reduce the amount of energy required to cool the potatoes. It's helpful to place a temperature sensor in the center and on top of the pile or bin to monitor tuber temperature, in addition to monitoring air temperature in the storage and outdoors.

Potatoes are most commonly cooled using outdoor air, but this should be managed carefully. For the best use of outdoor air, place temperature sensors inside and outside the storage space, with thermostats and switches wired in series to bring air in with fans only if inside temperature is above and outside temperature is below your desired set point. Use outdoor air that is no lower than 3 to 5°F below the tuber temperature. Through-the-pile (or through-the-bin) ventilation achieves rapid cooling, but may cause dehydration unless a humidifier is used. Air exhaust is also critical, to remove warm air.

Tubers exposed to fluctuating temperatures, for example along with outdoor cool and warm spells, may have reduced storage life and quality. Fluctuations in temperature may also lead to condensation in the pile. If the temperatures in the top and center of the pile are higher than the outside air temperature, then ventilate the storage. When night temperatures are warm (50-65°F) and there is not enough ventilation through the pile, the temperature in the pile can get into the 70's or even 80's. Heating is generally not needed in potato storage due to the heat of respiration from the tubers, though insulation in the walls and roof is important. Significant heat can also be lost through leakage from doors and windows.

The holding temperature should be suited to your market goals and to achieve the desired balance among respiration rates, sprouting, disease development, and transformation of starch into sugars. Lower respiration rates correspond to longer storage time. Respiration rates are lowest at 36 to 37°F; however at temperatures below 45°F, conversion of starch to sugar increases. This conversion is reversible if storage temperatures are slowly elevated to 55 to 65°F for 1-4 weeks. Potatoes with high sugar content will have off-flavor and will turn brown when cooked, due to the reaction of the sugars with proteins. Tuber rots increase greatly above 50°F. References and grower experiences don't all agree on the ideal temperatures for different uses, but the recommendations below are found in several reliable sources.

Tablestock (no sprout inhibitor): 38 to 40°F. This is the optimum temperature range for inhibiting sprouting. Some growers report that they can hold at 36°F for fresh market sales during the winter months. For diversified farms, this may allow for storage of other root crops and cabbage in the same storage room as potatoes, if infrastructure is limited.

Tablestock (with sprout inhibitor): 40 to 45°F. If the humidity is kept high and sprout inhibitors are used, potatoes stored at 45°F will maintain quality similar to those stored at 40°F.

Seed potatoes: 38 to 40°F. For seed, tubers need to be kept dormant and in a sound, viable condition.

Processing: 45 to 55°F is recommended for processing potatoes, to prevent accumulation of sugars which darken the potato during cooking. 50 to 55°F is recommended for chipping, although this varies with cultivar.

Managing Relative Humidity: Humidity should be maintained at 90 to 95% throughout storage life to prevent dehydration and shrinkage and reduce pressure bruising. Given high relative humidity (RH) inside and low RH and temperature outside during the winter months, adequate insulation in walls and roof is important to avoid condensation. A humidifier with a capacity to deliver about one gallon of water per 1,000 cubic feet per minute (CFM) is usually adequate. Centrifugal and misting humidifiers introduce water into the atmosphere in small particles. These small water particles are easily absorbed by the cool air and effectively increase RH. These systems are the most reliable and effective, however they are also the most expensive. There are several models and sizes available to fit individuals' specific needs. Chris Callahan at UVM Extension has also developed a simple DIY auto-fill humidifier using a five gallon bucket, a tank de-icer for heat, and a fan. Details can be found at Callahan's blog.

Measuring Relative Humidity: Digital hygrometers are the easiest tools for measuring relative humidity. However, they can be out of calibration or give false readings, especially at higher relative humidity levels (>90%) like those needed in potato storages. Sling psychrometers are simpler mechanical hygrometers. They use two thermometers to measure dry-bulb and wet-bulb temperatures; the difference between these temperatures is used to determine the specific relative humidity of the atmosphere. Digital hygrometers should be routinely checked against a sling psychrometer to measure their accuracy.

A digital hygrometer/thermometer in potato storage. Photo: R. Hazzard

Ventilation: The ventilation system is the heart of potato storage, controlling temperature and humidity by ventilating, recirculating, and blending air. These systems range from manual to totally automatic. Convection currents cause heat to rise through the pile or bins. An exhaust fan should be placed so that it removes warm air from the top of the storage. Intake fans and openings should be adjustable to control the amount of air being drawn in. It is important that air is allowed to flow around and through the potatoes, whether they are stored in piles or in bins. For pile storage, air should be directed from the bottom of the pile towards the top, which requires a ventilation system that is built into the floor or laid down during piling. For storage in bins, the air should be directed to flow through the bins either from bottom to top or side to side (see Belyea presentation, below, for details on how a bottom-to-top system can be designed). This allows for consistent temperatures and relative humidity throughout the storage and thus consistent tuber conditions.

Further Reading:

See Chris Callahan's blog at the UVM Extension website for further information and tools on calculating exhaust needs and fan exhaust system specifications.

For an excellent review of storage design with a lot of detail in terms that non-engineers can understand, see this presentation by Stephen Belyea, storage engineer with the Maine Dept. of Agriculture, Food and Rural Resources.

Looking to store potatoes with other crops? See the presentations from Engineering Storage Facilities for Winter Vegetable Crops and the Community Involved in Sustaining Agriculture Winter Crop Storage page.

Sources Include:

Moyer, D. 1986. Potato Storage Management. In C. Hollingsworth, D. Ferro, & W. Coli (Eds.), Potato Production in the Northeast.

USDA Handbook 66, The Commercial Storage of Fruits, Vegetables, and Florist and Nursery Stocks.

Potato growers, including Paul and Kevin Jekanowski, Jekanowski Farm, Hadley MA, and Rob Johanson, Goranson Farm, Dresden ME.

--Written by Ruth Hazzard and Luke Doody, UMass Extension

PHOSPHORUS MANAGEMENT FOR VEGETABLE FARMERS

Over the last few years, some growers have started wondering: "How did my soil phosphorus levels get to be so high and what can I do about it to keep from being a source of phosphorus pollution?" UMass Extension hosted a symposium in 2016 on 'Managing Phosphorus in Organic Residuals Applied to Soils' with experts and professionals from all over the region and we now have a better understanding about how to tackle that question. We learned that phosphorus supply and demand are unevenly distributed across the US, with New England being a net importer of P in the form of fertilizer and feed (human and animal). The excess P then stays in our area as manure. We can improve P management by using local sources of food, animal feed, and fertilizer, rather than importing it from other areas. Highlights from the symposium about soil phosphorus dynamics, soil testing and interpretation, and P mitigation strategies are included here to help growers take some practical steps toward improved P management.

Soil phosphorus dynamics

Fertilizer phosphorous comes mostly from fossilized bones and is rapidly fixed by binding with minerals and becoming

unavailable to plants once applied to soil. Organic forms of phosphorus applied—including manure, compost, biosolids, or cover crops—become available more slowly than commercial fertilizers through the growing season, depending on microbial activity, which is influenced by temperature, moisture, and soil fertility. In cold soils (below 50°F), the mineralization of P from organic sources by microbes is slowed down, so additions of more rapidly available forms of P generate a crop growth response. Phosphorous from fertilizer or decomposing organic matter is highly soluble and will erode away if not incorporated into the soil. When incorporated, P will quickly (within a few hours) bind with iron, aluminum, calcium or magnesium (depending on soil pH) (Fig 1). Once bound, phosphorous becomes available for plant uptake only very slowly (possibly years). Incorporated P can still contribute to pollution when soil particles containing P erode with wind or water. In most soils, there is plenty of Fe, Al, Ca and Mn to bind P so the most common source of P pollution occurs as surface runoff from unincorporated fertilizer or organic matter. An actively growing root system is one of the best ways to cycle P and reduce potential for erosion. The concentration of soluble P needed for growth of agronomic crops is about 0.2 ppm, while only 0.02 ppm (10x lower) is all it takes for aquatic plants to grow and cause eutrophication in aquatic systems—this is why phosphorus can so quickly cause water pollution.

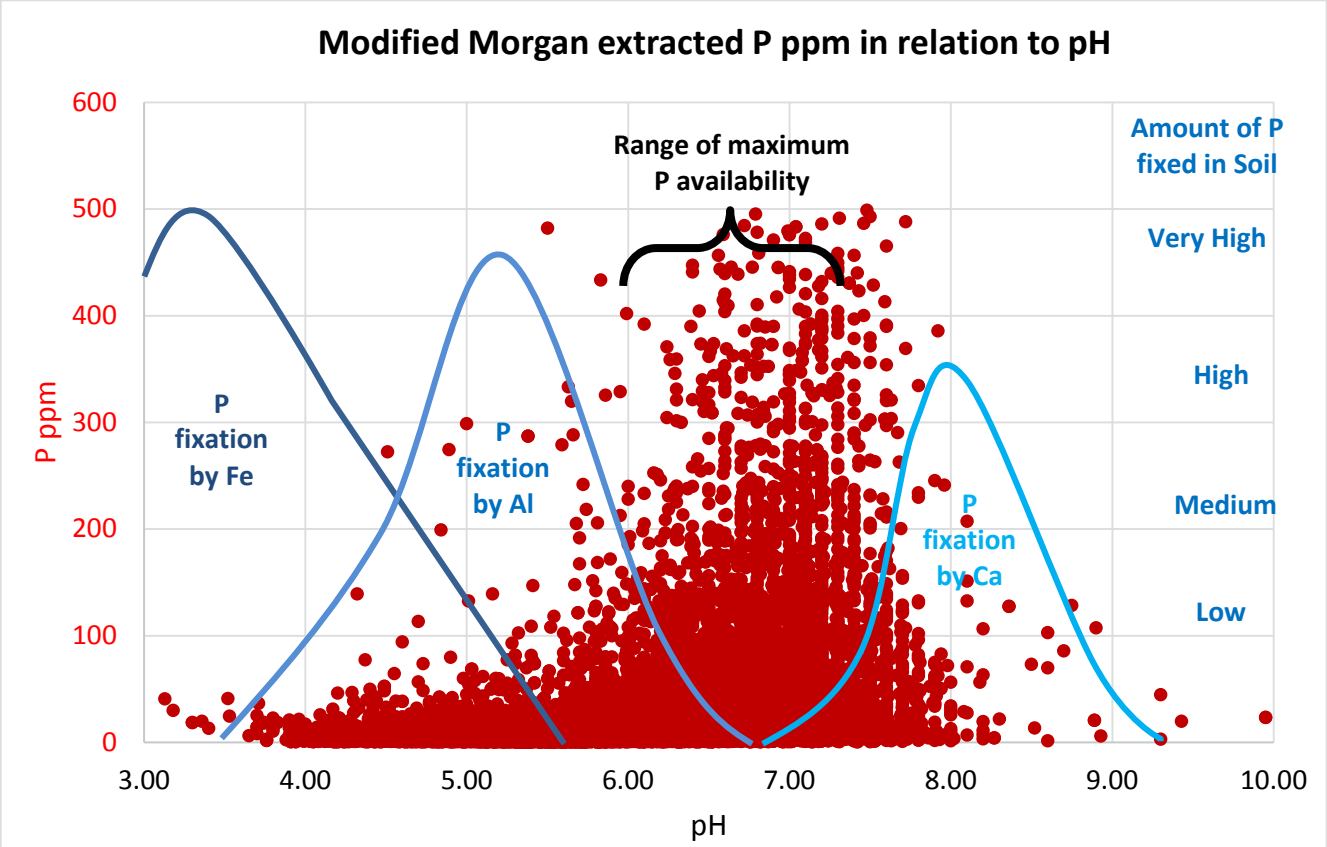

Figure 1 by Katie Campbell-Nelson. The red dots represent Modified Morgan extracted P levels in ppm from over 24,000 soil samples analyzed at the University of Massachusetts and Maine soil labs in 2015. Area underneath the blue lines represent P fixation by iron and aluminum phosphates at low pH and calcium phosphate at high pH.

Phosphorus testing and interpretation

A good practice is to take soil samples at the same time each year (usually fall) to monitor soil test P levels over time and find out if they are increasing, which would indicate that more P is being applied than is being removed by crops. Following are methods of P extraction and when you might use them:

Modified Morgan extraction reflects what nutrients are available in one growing season: dissolved in soil water, sorbed to mineral surfaces, and in organic matter decomposing that year. This method is still considered the most accurate soil analysis method for New England soils because it has been widely used to conduct nutrient management studies and correlate crop yield to fertility amendments in our region. This is the standard test used by MA, VT and CT soil testing labs. Until 2012, the UMass soil lab considered soil test P levels to be "above optimum" when soils exceeded 40ppm. With recent research showing that P was leachable in certain soil settings at 40 ppm, and

data showing that crops do not require more than 14ppm P to achieve maximum yields, soil test interpretations were changed and now soils with >14ppm P are categorized as "above optimum". Therefore, you may have seen a change in interpretation of test results that were not due to any change in your farming practice.

If soil test P levels are high or above optimum (>14ppm Modified Morgan extracted P), the risk of P pollution may still be low. Phosphorus becomes a threat to the environment when there is a combination of source AND transfer. Risk of pollution may only be assessed if there is enough information about how the P may be transported to water. For example, there is high risk of pollution from P applications on frozen ground, on slopes greater than 7%, or within 25 ft. of a water source. In these scenarios, a field with low or below optimum P levels may actually pose a greater risk of pollution than a high-P field, especially if P was applied right before heavy rains. Another example of poor P management would be spreading compost onto a field in the fall without incorporation or without a cover crop, because the P may runoff in the spring as snow melts and transports it to nearby streams. Soils with above optimum P are not a threat to the environment if there is low overland water movement or soil erosion. Keeping a living ground cover is your best protection against P pollution.

Water Extractable P: When testing organic residuals (e.g. compost* or biosolids), water extractable P (WEP) is a useful analysis for determining immediate risk of runoff. Water extractable P represents the P that is available at the time of application for plant uptake (or potential runoff). *Note: The UMass soil lab no longer offers compost analysis but below are labs that offer testing services discussed in this article.

Total Phosphorus: Most labs, including UMaine and UMass, also offer one of the EPA methods (3050 or 3051) for "total labile P". These methods use boiling concentrated nitric acid and hydrochloric acid to destroy all organic matter, and strip all Al and Fe surface coatings. Sand, silt, and clay particles are left intact. This is usually a regulatory method to quantify the total pool of reactive P in soil and eroded sediment. Much of this total P will remain permanently or semi-permanently unavailable to plants in the field.

UMass Soil and Plant Nutrient Testing Laboratory
Services: Modified Morgan
Web: http://soiltest.umass.edu/
Phone: 413-545-2311
Email: soiltest@umass.edu

UConn Soil Nutrient Analysis Laboratory
Services: Modified Morgan
Web: http://www.soiltest.uconn.edu/
Phone: 860-486-4274
Email: soiltest@uconn.edu

UVM Agricultural and Environmental Testing Lab
Services: Modified Morgan, manure
Web: https://www.uvm.edu/pss/ag_testing/
Phone: 802-656-3030
Email: AgTesting@uvm.edu

UMaine Analytical Lab and Soil Testing Service
Services: Modified Morgan, manure, compost, TP and WEP
Web: https://umaine.edu/soiltestinglab/
Phone: 207.581.2945
Email: hoskins@maine.edu

Penn State Agricultural Analytical Service Lab
Services: manure, compost, TP and WEP
Web: http://agsci.psu.edu/aasl
Phone: 814-863-0841
Email: aaslab@psu.edu

Spectrum Analytic
Services: Modified Morgan, manure
Web: http://www.spectrumanalytic.com/
Phone: 1-800-321-1562
Email: info@spectrumanalytic.com

Dairy One
Services: Modified Morgan, manure
Web: http://dairyone.com/
Phone: 1.800.344.2697 or 607.257.1272
Email: mark.joyce@dairyone.com

Phosphorus mitigation strategies

Symposium attendees came up with quite a few creative P mitigation strategies during round table discussions. Here are some that are applicable to vegetable growers:

- Identify areas on the farm where there is a large source of P ***and*** high risk of transport. Develop a P mitigation strategy for these fields first.

- When using organic residuals, it is easy to over-apply P when trying to meet a crop's N demands due to the ratio of N:P in the materials. Therefore, calculate P content before making compost or manure applications to meet crop needs, then use an N-based fertilizer such as urea, alfalfa or soybean meal to meet the crop's N needs.
- Do not surface apply organic residuals such as manure or compost before heavy rain.
- If soil test P levels are above optimum, experiment with lower P applications by leaving it off of a few hundred row ft of crop, especially in early spring plantings and then keep track of yields.
- Reduce soil compaction.
- Convert areas of highest risk for P transport to buffer strips.
- Make banded rather than broadcast applications of P-containing materials whenever possible, and incorporate material to 2 inches below seeding depth to allow roots to grow down to meet the P.
- If P-containing residual or fertilizer is applied, consider incorporation to increase mineral binding and applying to planted cover to reduce potential soil erosion caused by tillage.
- Use low-P sources of organic residuals such as leaf mulch compost instead of food waste or manure-based compost. Poultry litter and pig manure have the highest P-content of compost-based fertilizers because those animals lack the enzyme which stabilizes P; ruminants have this enzyme.
- Consider growing high yielding crops such as corn and removing crop residues after harvest.
- Use 'hyperaccumulator' cover crops like mustard, Johnson grass, corn and sorghum or alfalfa to take up P from the soil, then remove and compost the material or feed it to animals to recycle the P.
- Manage soil pH to a range between 6.5-7.2 first, then get a soil test and amend with P afterwards, only if needed.
- Conduct a whole-farm nutrient balance worksheet, making sure to credit all sources of P including from organic residuals and cover crops.
- Conduct a risk assessment using the Phosphorus Index to determine risk of P pollution from a particular field. Contact your local NRCS office for help with conducting the P-Index analysis.
- Maintain regular soil testing practices using the Modified Morgan for soils and ask for testing results of organic residuals wherever you source them from.
- Reduce the amount of P that is imported into our region and onto our soils by using local sources of organic residuals rather than purchasing P fertilizer. Organic residuals such as compost have the added benefit of increasing soil organic matter and water holding capacity which will also reduce P runoff.

Thanks to Jennifer Weld, PhD Candidate, Soil Science Project Associate and Dr. John Spargo, Director, Agricultural Analytical Services Lab, Penn State University and Dr. Amy Shober, Associate Professor and Extension Specialist Plant and Soil Sciences, University of Delaware and Ned Beecher, Director, Northeast Biosolids and Residuals Association.

Resources:

Presentations from November 2, 2016 Symposium "Managing Phosphorus in Organic Residuals Applied to Soils": https://www.nebiosolids.org/managing-p-in-organic-residuals-applied-to-soils

-Written by Katie Campbell-Nelson

News

NIFA LISTENS: INVESTING IN SCIENCE TO TRANSFORM LIVES, A STAKEHOLDER INPUT OPPORTUNITY

The National Institute of Food and Agriculture is accepting input from stakeholders regarding research, extension, and education priorities in food and agriculture. A series of four in-person listening sessions hosted in different regions across the country and submission of written comments will offer two ways to share your thoughts and ideas. Stakeholder input received from both methods will be treated equally.

This 2018 listening opportunity allows stakeholders to provide feedback on the following questions:

- When considering all of agriculture, what is the greatest challenge that should be addressed through NIFA's research, education, and extension programs?
- In your field, what is the most-needed breakthrough in science/technology that would advance your agricultural enterprise? Breakthroughs result in transformative changes in knowledge, technology, or behavior.
- What is your top priority in food and agricultural research, extension, or education that NIFA should address?

NIFA wants to hear from you about priorities and opportunities in agricultural sciences. This will help inform NIFA on prioritizing science emphasis areas, identifying gaps in programming, and determining which programs are redundant or underperforming. Along with input from NIFA employees, your feedback gathered throughout the initiative will be used, in the context of NIFA's current science emphasis areas, to identify gaps in current portfolios and potential investment opportunities.

PROVIDE INPUT

To contribute your ideas online and to register for in-person listening sessions, fill out our input form. You have the option to give a five minute oral presentation and submit written content; however, it is not required to do both.

- **Individuals wishing to attend in-person listening sessions must complete the RSVP in the input form. See RSVP deadlines below.** If you are making a five minute oral presentation, you must submit a short 250 word abstract describing your topic.
- **Submissions of written comments will be accepted through Friday, November 30, 2018.** The input form is one opportunity to share written comments. Please take time to consider and clearly form your answers to the questions above before filling out the form. You will be allowed 250 words for each question. We recommend composing your answers to these questions in a separate document before filling out the form to make sure that you remain within the word limit. These responses should be thoughtfully constructed to reflect your personal or organizational priorities and emerging needs and opportunities in food and agricultural research, extension, and education. You may also submit written comments via NIFAlistens@nifa.usda.gov.

LISTENING SESSIONS

The information will be updated as more details become available.

Session Locations, Dates and Recordings:

- Bond Ballroom, Hartford, Connecticut (Thursday, October 11, 2018)

  Time: 8:30 a.m.–5:00 p.m. local time for each listening session

  (Note: The listening sessions will be livestreamed, but oral presentations will be limited to in-person participants. Livestream link will be added to this page when it is available.)

RSVP Deadlines (via input form):

- Bond Ballroom, Hartford, Connecticut (RSVP by Thursday, October 4, 2018)

REMINDER TO REPORT CROP DAMAGES PROMPTLY

Producers covered by a Federal Crop Insurance Policy are reminded to monitor their crops for insurable damage throughout the growing and harvesting season. If you notice damage contact your crop insurance agent within 72 hours of discovery, 15 days before harvesting begins and within 15 days after harvesting is completed on the insurance unit. Two other important reminders:

- Direct marketed crops must have a yield appraisal before they are harvested, if loss is anticipated.
- Do not destroy crop evidence that is needed to support your claim without clear direction, in writing, from the

insurance adjuster.

Producers having coverage under the Noninsured Crop Disaster Assistance Program (NAP) administered by the USDA - Farm Service Agency have similar loss reporting requirements. NAP producers should contact the FSA Office that serves their farming operation to report losses.

UMass Extension works in partnership with the USDA Risk Management Agency (RMA) and various agricultural organizations to educate and inform Massachusetts producers about Federal Crop Insurance and Risk Management Programs. For more information, please visit www.rma.usda.gov *or contact UMass Extension Risk Management Specialists Paul Russell at* pmrrussell@umext.umass.edu *or Tom Smiarowski at* tsmiarowski@umext.umass.edu *or check out our website:* https://ag.umass.edu/risk-management

Northeast SARE Invites Farmer Grant Applications

The Northeast Sustainable Agriculture Research and Education (SARE) Program has released the call for applications for 2019 Farmer Grants. Proposals are due online by **Tuesday, November 27, 2018 at 11:59 p.m. E.T.** Funded projects will be announced in **late February 2019**, and projects may begin in the spring.

Northeast SARE Farmer Grants are intended for farm business owners and managers who would like to explore new sustainable production and marketing practices, often through an experiment, trial or on-farm demonstration. Reviewers look for innovation, potential for improved sustainability and results that will be useful to other farmers.

Application materials, including detailed instructions and supporting documents, are posted on the Northeast SARE website at www.northeastsare.org/FarmerGrant. Questions about the grant program should be directed to northeastsare@uvm.edu.

Farmer Grant projects must be conducted in Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia or Washington, D.C. Awards are capped at $15,000 and projects may address the wide range of issues that affect farming in the Northeast. To search topics that SARE has previously funded, please access the national database of projects at projects.sare.org/search-projects.

Applicants must work with a technical advisor—typically a Cooperative Extension educator, Natural Resources Conservation Service staff, nonprofit organization employee, private crop consultant, veterinarian or other service provider—who provides support and advice to the farmer applicant.

Northeast SARE will host a **Farmer Grant webinar on Oct. 10 from 12:30 to 1:30 p.m.** Carol Delaney, grant program coordinator, will provide information on program eligibility, how to apply, types of projects SARE funds, allowable expenses and more. The webinar is free. To register, visit http://go.uvm.edu/farmergrant19. To request a disability-related accommodation to participate, contact Debra Heleba at (802) 651-8335, ext. 552, by Oct. 3.

If you have questions about applying for a farmer grant in Massachusetts, contact your state Coordinator: Katie Campbell-Nelson, UMass Extension Vegetable Program, kcampbel@umass.edu or 413-545-1051.

*-- Debra Heleba, NESARE Communications Specialist (*Debra.Heleba@uvm.edu*)*

Northeast SARE, which is funded by the U.S. Department of Agriculture's National Institute of Food and Agriculture, offers competitive grants and sustainable agriculture education.

Events

Cover Crop Workshop for Vegetable Growers

Get ready to weatherproof your soils from the droughts to deluges! Join us for a full day focused on cover crops, utiliznig both conventional and no-till methods. Suitable for farmers and field staff interested in planting and managing cover crop monocultures and mixtures to address a variety of resource concerns. Includes an afternoon field visit to

Davidian Brothers Farm in Northborough, MA. UMass Extension Educator Katie Campbell-Nelson will present her on-farm research on using cover crops to grow your own nitrogen.

When: Thursday, October 11, 2018, 9am-3pm

Where: Mass Division of Fisheries & Wildlife Headquarters, 1 Rabbit Hill Rd., Westborough, MA

Registration: http://worcesterconservation.org/workshops/

Produce Safety Alliance Grower Training - Grafton

Fruit and vegetable growers! Wondering where to begin with food safety? Start here! The PSA Grower Training is currently the only FDA-recognized produce safety training to help growers implement Good Agricultural Practices (GAPs) and understand their responsibilities under new Federal regulations. Whether you have a farm that is fully covered by the law or a small, exempt farm and you're just looking for information, this training is for you.

The PSA Grower Training Course satisfies the FSMA Produce Safety Rule requirement outlined in §112.22(c) that requires 'At least one supervisor or responsible party for your farm must have successfully completed food safety training at least equivalent to that received under standardized curriculum recognized as adequate by the Food and Drug Administration.' The training is also required for participation in Massachusetts' Commonwealth Quality Program.

Cost is $40 and includes the required PSA Grower Manual ($50 value), a Certificate of Course attendance from AFDO ($35 value), and lunch and refreshments.

This is your last opportunity to attend a PSA training in Massachusetts this year. We will hold another series of trainings in several locations around the state early in 2019.

When: Monday, October 29, 2018 from 9 am to 5 pm

Where: Brigham Hill Community Farm, 37 Wheeler Rd, North Grafton, MA 01536

REGISTER HERE: https://umasscafe.irisregistration.com/Form/PSAGrafton18

Northeast Greenhouse Conference and Expo

The biennial Northeast Greenhouse Conference & Expo is co-sponsored by New England Floriculture, Inc. - a group of grower representatives from the Northeast, augmented by University and Cooperative Extension staff in each state who specialize in greenhouse crops and management. Don't miss this great opportunity to learn, share and connect with other industry professionals! Pesticide credits are available for this event. For a list of presentations and pesticide credit information, visit the website linked above.

When: November 7 & 8, 2018

Where: Boxboro Regency Hotel, 242 Adams Pl., Boxborough, MA 01719

Registration: https://www.negreenhouse.org/registration.html

High Tunnel Production Conference

Save the date! This conference is for high tunnel growers and agricultural service providers of all experience levels. There will be plenty of opportunities to share expertise and learn from one another. Additional details, and registration information, are coming soon. UMass Extension Educator Katie Campbell-Nelson will be there offering one-on-one support to interpret UMass soil tests for high tunnels.

When: December 3-4, 2018

Where: Manchester Downtown Hotel, 700 Elm St., Manchester, NH 03101

THANK YOU TO OUR SPONSORS:

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