



UMass  
Extension

# Vegetable Notes

For Vegetable Farmers in Massachusetts since 1975



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## CROP CONDITIONS

This month, crop conditions come to you from Long Island. Last week, I drove to New London, CT, onto a ferry and over to Riverhead, NY to give a talk for Cornell's Suffolk Co. Extension on using weather forecasting models for decision making on diversified vegetable farms. While there, I met: an 11th generation farmer who has been using no-till practices on his pumpkins for the last 10 years to combat *Phytophthora* and build soil organic matter, an organic farmer who owns farmland in Iowa, Arizona and Long Island advising that crop diversity and rotation is a major key to adapting to climate change, a farmer and trainer for a land trust farm with some great tips for managing deer, and Legislator Al Krupski who is also a diversified fruit and vegetable farmer. Farmers seem to be as diversified as what they grow. Al says he is able to keep his farm stand open now until Christmas while even 10 years ago, it was too cold in November to attract customers. We are seeing similar trends in farm stores across Massachusetts. More news from the home front: with the ground finally frozen and some snow on the ground, greenhouse, fencing, and irrigation construction projects are coming to a halt. Last week, before the snow, strawberries were being mulched around the state and one grower who tried growing ever-bearing varieties under low tunnel perforated plastic was very pleased with his harvest up until Thanksgiving! High tunnel and greenhouse crops are being harvested, but not without their problems. This past month spinach downy mildew (an oomycete) was diagnosed in several New England states, though not MA and powdery mildew (a fungus) on lettuce from Norfolk, Co. MA was diagnosed by UMass Diagnostician Angie Madeiras. These mildews are caused by entirely different organisms and therefore different classes of pesticides are used to manage them. Also, the downy mildew on spinach is different from the downy mildew found on cucurbits or basil, while the powdery mildew found on lettuce may also infect cucurbits but is different from the powdery mildew found on tomato. A lettuce/cucumber rotation in high tunnels should be avoided if powdery mildew is common, though other wild and ornamental hosts are likely the most important source of inoculum. See **Pest Alerts** below for more information.

Oh, and are you interested in that tip on deer management from the farmer in Long Island? His approach is mostly focused on animal behavior. Deer fencing works great only if the deer can be trained to go around the fencing. Therefore, use apple scent to bait the herd to an electric fence, and do not chase the deer if you see them near the fencing since spooking them may cause them to jump through the fence and into the field. Once in the field, deer will now know that the fence is not really a barrier. Occasionally, fencing must be set up in a way to give corridors to the deer to encourage them to pass through a farm rather than staying. In the meantime, enjoy hunting season!



*Snow on lettuce? Nope! Powdery mildew.  
photo: G. Higgins, UMass Extension*

# **PEST ALERTS**

## **The ‘Late blight’ of Spinach Developing Now in the Northeast: See It?? Report It!! Manage It!!**

Downy mildew has been found recently in spinach at several farms in the northeastern U.S. This devastating disease has not been confirmed in our region for several years but it has been a major production constraint in California. Pathogens causing downy mildew are Oomycetes and thus are related to the late blight pathogen found on tomato and potato. They are similar in their ability to produce an abundance of wind-dispersed spores capable of moving long distances and do not need leaves to be wet to infect (high humidity is sufficient). They also have the ability to devastate crops.

All growers with spinach should inspect their plants for symptoms promptly NOW and also in spring plantings to catch any carry over or new outbreaks. If downy mildew is suspected, please contact your local extension specialist and send an e-mail to [mtm3@cornell.edu](mailto:mtm3@cornell.edu).

It will be **CRITICAL** that all high tunnel and overwintering spinach crops with downy mildew be destroyed a couple weeks before the start of the spring spinach production season in the region to avoid carry over into 2017.



*Top: Symptoms of downy mildew on the top of spinach leaves, Bottom: Downy mildew spores on the underside of spinach leaf.  
photo: T. Rusinek*



**Symptoms.** Purplish-gray, fuzzy growth of the pathogen, which is usually on the underside of leaves, is diagnostic. Early morning is the best time to see this growth (which is spores and the structures holding them produced overnight). Then during the day the spores are dispersed. On the top side of leaves, opposite of where the growth develops, the leaf tissue will be yellow, initially dull, becoming brighter and larger with time. Subsequently affected tissue will become dry and tan. If only leaf yellowing is seen, which could occur when humidity is low, put suspect leaves upside down on wet paper towel in a closed ziplock bag for a day. Keep the bag in the dark to further promote the pathogen if present to develop.

**Management.** Resistant varieties have been an important management practice, but the pathogen has proven adept at developing new races able to overcome host resistance. Last year race 16 was discovered. Several conventional and organic fungicides are labeled. More information about managing downy mildew is at: <http://livegpath.cals.cornell.edu/2016/11/15/disease-alert-spinach-downy-mildew/>

### **Do you grow spinach?**

If so, your help is requested to increase knowledge about downy mildew occurrence in the region. This will help guide management recommendations. Please send an email to Meg ([mtm3@cornell.edu](mailto:mtm3@cornell.edu))(**subject: SDM**) with information about whether or not downy mildew has ever been observed or suspected in your crops, when observed, how many years you have been growing spinach, and when (spring, fall, and/or overwinter). Thank you very much. Your time is greatly appreciated.

*-- Prepared by Margaret Tuttle McGrath, Plant Pathology and Plant-Microbe Biology Section, SIPS, Cornell University, Long Island Horticultural Research and Extension Center, 3059 Sound Avenue, Riverhead, NY 11901; [mtm3@cornell.edu](mailto:mtm3@cornell.edu)*

### **Powdery Mildew on Lettuce**

Powdery mildew was recently diagnosed on lettuce grown in a high tunnel in Norfolk County, MA. The species was identified as *Golovinomyces chicoracearum*. Since high tunnel growers often use tunnels for greens and cucurbit crops, there was concern about the possibility of the lettuce powdery mildew affecting a subsequent cucurbit crop.

The powdery mildew species *Golovinomyces chicoracearum* and *Podosphaera xanthii* closely resemble each other and have frequently been mistaken for one another, so there is lingering confusion about their respective host ranges. Both been reported on cucurbits and lettuce; however, research indicates that these species may be more host specific than

previously thought *G. chicoracearum* has a temperature optimum of 15-20°C, whereas the optimum for *P. xanthii* is 20-30°C. Both species may form chasmothecia, the small, round, dark structures that allow the pathogen to overwinter without a host; however, chasmothecia are frequently not found, so their importance in the epidemiology of these species is uncertain. Both *G. chicoracearum* and *P. xanthii* infect wild and ornamental hosts, and this is likely to be an important source of inoculum. It's possible, but not likely (at this point anyway) that growers have to worry about one of these species affecting both lettuce and cucurbits. Continuous cropping in high tunnels may allow a low level of disease to persist. See [UMass Greenhouse Disease Guide](#) for treatment options, but check the label before use in a high tunnel setting on lettuce.

## **EVALUATION OF BIOLOGICAL FUNGICIDES TO CONTROL DISEASES OF SPINACH IN WINTER HIGH TUNNELS**

Across the Northeast, high-tunnels are being used with increasing frequency to lengthen the season of spinach and other greens to have produce to sell all winter long. In these systems, high tunnels are usually planted to crops like tomatoes or cucumbers in the summer and then turned over and planted to spinach in the fall, and this cycle is repeated year after year. In this high intensity, year-round system, insect and disease pests build up over time and can become difficult to control. A disease of particular importance is damping-off of spinach, which can cause poor germination and stand, sometimes to the extent that the crop needs to be re-seeded and the narrow window for successful establishment may be missed, drastically reducing yields. Damping off (*Pythium spp.*, *Rhizoctonia spp.*, *Fusarium spp.*), seedling blight (*Rhizoctonia solani*), and leaf spots such as *Cercospora* and *Cladosporium* build up in tunnels where spinach is grown year after year, reducing marketable yield and quality. In this study, UMass Extension partnered with Queen's Greens—a commercial vegetable farm with a focus on year-round production of organic greens—to evaluate efficacy of biopesticides to improve germination, reduce disease severity, and improve yields in winter-grown spinach.

We conducted lab and field trials to: a) determine if certain biocontrol organisms are more cold tolerant than others and would thus be better suited for use in winter production systems; and b) if any of the products evaluated can significantly increase crop yield and quality.

**Field Experiment Methods:** The field experiment was conducted at Queen's Greens in Amherst, MA in a 200 x 300 ft Rimol Nor'Easter (Rimol Greenhouses, Hooksett, NH) high tunnel. No supplemental heating or covers were used. 'Raccoon' spinach seeds (Johnny's Selected Seeds, ME) were direct-seeded with a Jang push seeder on 02 Oct 2015 at approximately 0.5 in. in-row spacing and 11 rows approximately 2 in. apart per bed. A randomized complete block design was used with six treatments plus an untreated control, each replicated four times, in plots consisting of 20-ft of bed with 5-ft buffers between plots.

Treatment	Product	Interval	Rate	Cost (\$) / Tunnel / Season
1	Untreated			<b>0.00</b>
2	Double Nickel LC	2 wks	1.5 qt/100 gal	<b>114.13</b>
3	Rootshield Plus	6 wks	8 oz/100 gal	<b>74.82</b>
4	Actinovate AG	2 wks	9 oz/100 gal	<b>245.39</b>
5	Mycostop G	4 wks	2 g/100 sq ft	<b>864.00</b>
6	Oxidate	1 wks	24 oz at 1:300	<b>753.21</b>
7	RootShield Plus, Oxidate	6 wks; 1 wks	8 oz/100 gal 1:300	<b>828.03</b>

All treatments were applied as a soil drench over the row at seeding, with follow-up applications made as soil drenches over the row according to rates and intervals specified by the manufacturers (see Table above). All drench applications were made using a CO2 pressurized backpack sprayer delivering 200 gal/A at 50 psi through one TeeJet Floodjet nozzle (TK-7.5). Germination was first observed on 09 Oct and by 13 Oct most plots had germinated and plant stand was rated by estimating percent of plot area germinated (0-100%). Weekly ratings of plant stand and plot vigor and follow-up treatment applications were made all winter, through 03 Mar 2016. Marketable yield was assessed by measuring wet weight of the crop harvested from the whole plot at the first cutting. Replicates A and B were harvested on 17 January and the remaining two replicates were harvested on 24 January, in order to harvest only what the grower could sell during the following week. The growers determined what was marketable and not, leaving unmarketable spinach unharvested in the tunnel. Environmental data including air temperature, light intensity and soil temperature (2 in. depth) were recorded

every 2 hr by Hobo Weather Stations and/or data loggers (Onset Computer, Bourne, MA) from 03 Oct to 03 Mar. All data were analyzed using SAS 9.4 and means were compared using Fisher's LSD ( $\alpha = 0.05$ ).



Figure 1. Patchy spinach plant stand. photo taken by S. Scheufele on November 19, 2015

**Field Experiment Results:** Germination and plant stand was very patchy throughout the tunnel (Figure 1). This is likely due at least in part to pre- and post-emergence damping off, as signs and symptoms of damping off were observed on 13 Oct and *Rhizoctonia solani* and *Fusarium oxysporum* were isolated from affected plant tissue. The winter of 2015-16 was fairly mild; soil (2 in. depth) temperature in the high tunnel plots 03 Oct 2015 to 03 Mar 2016 averaged minimum of 42.2 and maximum of 56.5°F, and air temperature averaged minimum of 32.8 and maximum of 59.9°F. The absolute minimum temperature of soil and air recorded was 30.8 and 8.7°F, respectively (Figure 2). Unfortunately, we were not able to distinguish any consistent, significant differences in germination, stand, vigor, or

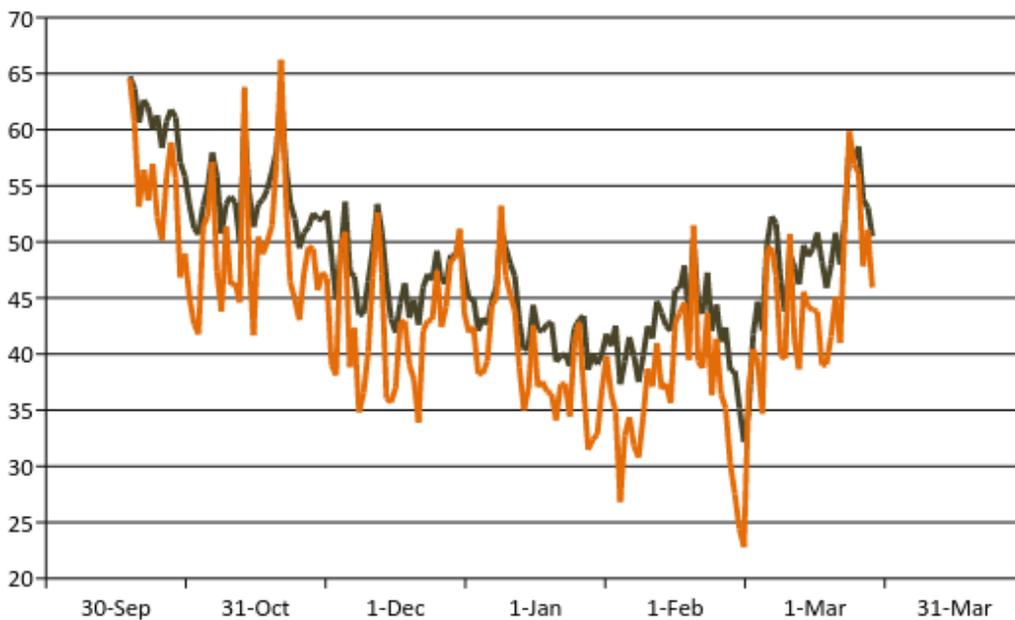


Fig 2. Average daily temperatures in °F inside the spinach tunnel September 2015 - March, 2016  
Gray line = soil temperature, Orange line = air temperature

yield across treatments. Plant number and vigor decreased at the second and third time-points and then rebounded—this may have been due to post-emergence damping off. Plant number at the third time-point (20 Oct) was significant, with all treatments except Rootshield Plus performing better than the untreated control and Mycostop G performing the best. We did not see any *Cercospora* or *Cladosporium* leaf spots in any of the treatment plots, including the untreated plots.

**Lab Assay:** In the lab assay, we isolated biocontrol organisms from commercial biopesticides and then grew them at different

temperatures (75, 50, and 42°F). All of the organisms grew very quickly at 75°F. At 50°F, which was close to the average soil temperature in the tunnel and is also the temperature at which many fungal pathogens become active, most of the organisms were able to grow very slowly, but Mycostop grew fairly well and outperformed all other bacterial organisms in both replications of the experiment. The two *Trichoderma spp.* present in Rootshield Plus grew at 50°F and also were able to grow, albeit slowly, at 42°F.

**Conclusions:** While none of the treatments made consistent, significant differences in overall stand, vigor, or yield, all products performed better than the untreated control during the early stages of germination and growth, and may be worthwhile for growers with soil-borne diseases in tunnels. Mycostop and Rootshield Plus may be better choices in cold conditions such as the winter tunnel environment. Furthermore, there was a really big range in cost depending on the material and the number of applications recommended (see Table 1), so that would be another thing to consider when choosing biopesticides and determining how often to spray.

-- by S. Scheufele, UMass Extension Vegetable Program.

Funding for the work reported here was provided by the USDA Sustainable Agriculture Research and Education Program.

# PHOSPHORUS MANAGEMENT FOR VEGETABLE FARMERS

Over the last few years, some growers have been 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 last month 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 demand and supply are unevenly distributed in the US and within our region with New England being a net importer of P in the form of fertilizer and feed (human and animal), therefore we can improve P management by using local sources. 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 phosphorus comes mostly from fossilized bones and is rapidly fixed once applied to soil. Organic forms of phosphorus applied—including manure, compost, biosolids, or cover crops—become available more slowly through the growing season, depending on microbial activity which is regulated by temperature, moisture, and soil fertility. For example, in cold soils below 50°F, the mineralization of P from organic sources by microbes is slowed down, and there is often a crop response to additions of P containing more rapidly available starter P fertilizer. From either source, phosphorus is highly soluble and erodible if not incorporated into the soil where it will quickly—within a few hours—bind with iron, aluminum, calcium or magnesium (depending on soil pH) and consequently become very slowly soluble for plant uptake (Fig 1). 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 surface runoff from unincorporated fertilizer or organic matter is the largest source of P pollution. An actively growing root system is one of the best ways to cycle P, utilize it for crop growth, and reduce potential for erosion. The concentration of soluble P needed for growth of agronomic crops is about 0.2 ppm, while a phosphorus concentration ten times lower of 0.02 ppm 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.

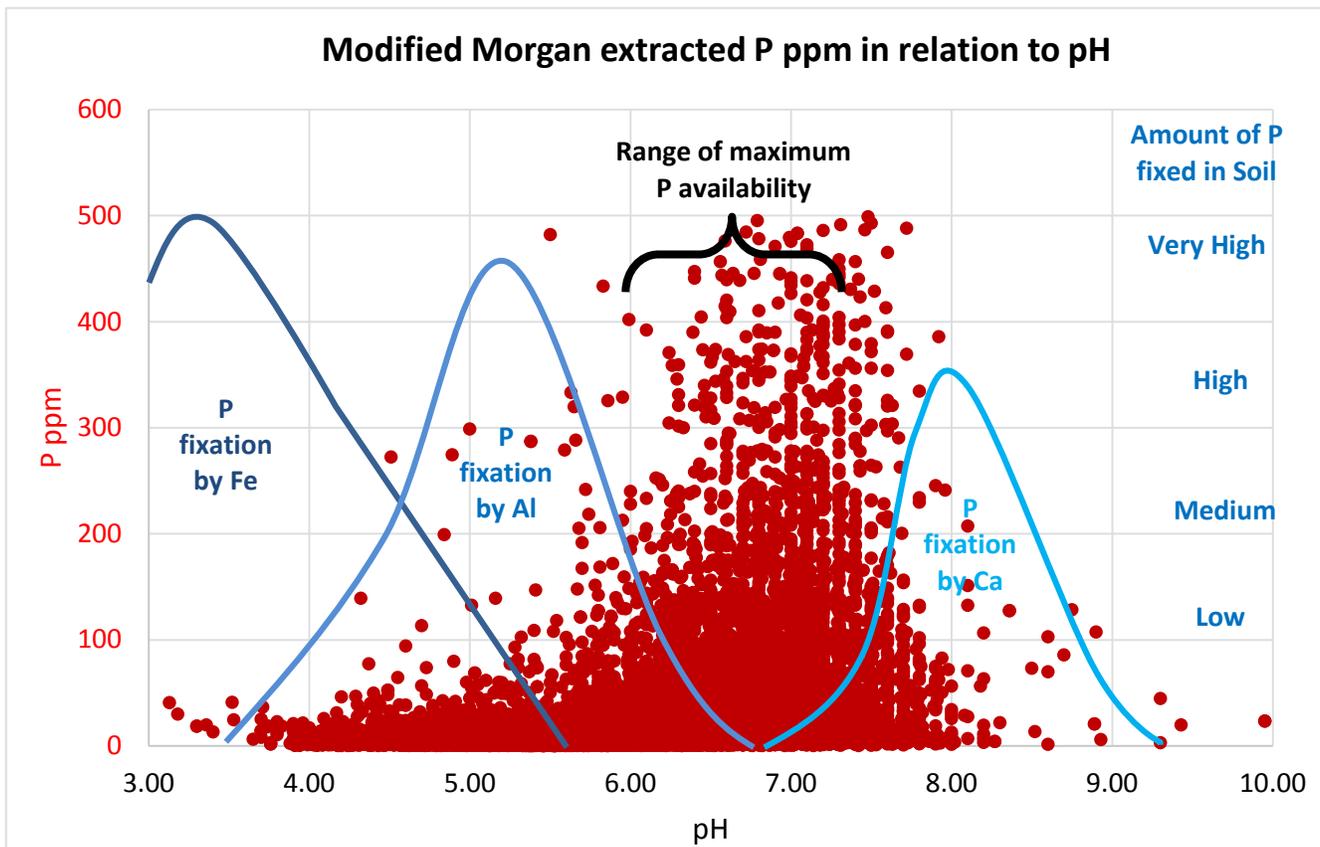


Figure 1 by Katie Campbell-Nelson. The red dots represent Modified Morgan extracted P levels in ppm from over 24,000 soil samples analyzed at the University of Massachusetts and Maine soil labs in 2015. Area underneath the blue lines represent P fixation by iron and aluminum phosphates at low pH and 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. Modified Morgan extractions are 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. Different soil test solutions extract different amounts of P from the soil and we don't have as good an understanding of what these values mean for crop yield responses in New England soils. University soil testing labs in VT, MA and CT give P fertilizer recommendations based on extracted P and AI to account for buffering capacity. When testing organic residuals (e.g. compost or biosolids), water extractable P (WEP) is a useful additional analysis to Total P (TP) for determining risk of runoff. Water extractable P represents the P that is available at the time of application, while Total P represents P that will become available during the growing season through mineralization. Please note: Until 2012, the UMass soil lab did not consider soil test P levels to be above optimum until the soils exceeded 40ppm P. However, with recent research showing that P was leachable in certain soil settings at 40 ppm and data showing that crops do not require >14ppm P to achieve maximum yields, soil test interpretations were changed to label soils with >14ppm P to be "above optimum". Therefore, you may have seen an increase in soil P levels due to changes in interpretation of test results that were not due to any change in your farming practice. The UMass soil lab no longer offers compost analysis but here are labs that offer testing services discussed in this article:

**UMass Soil and Plant Nutrient Testing Laboratory**

Services: Modified Morgan

Web: <http://soiltest.umass.edu/>

Phone: 413-545-2311

Email: [soiltest@umass.edu](mailto: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](mailto:soiltest@uconn.edu)

**UVM Agricultural and Environmental Testing Lab**

Services: Modified Morgan, manure

Web: [https://www.uvm.edu/pss/ag\\_testing/](https://www.uvm.edu/pss/ag_testing/)

Phone: 802-656-3030

Email: [AgTesting@uvm.edu](mailto: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](mailto: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](mailto:aaslab@psu.edu)

**Spectrum Analytic**

Services: Modified Morgan, manure

Web: <http://www.spectrumanalytic.com/>

Phone: 1-800-321-1562

Email: [info@spectrumanalytic.com](mailto: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](mailto:mark.joyce@dairyone.com)

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 scenario of poor P management would be spreading compost onto a field in the fall without incorporation or a without a cover crop where the P may runoff in the spring with snowmelt into nearby streams. Soils with above optimum P are not a threat to environmental contamination if there is low overland water movement or soil erosion.

**Phosphorus mitigation strategies:** Symposium attendees came up with quite a few creative P mitigation strategies during round table discussions. Here are some 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 their guts lack an 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. Here is a link to conduct the P-Index on your own: [https://efotg.sc.egov.usda.gov/references/public/MA/MA-P-Index\\_Version3\\_May2014.xltx](https://efotg.sc.egov.usda.gov/references/public/MA/MA-P-Index_Version3_May2014.xltx). Or, contact your [local NRCS office](#) for help with interpretation.
- 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 where possible. 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>

Massachusetts Phosphorus Runoff Index (Version 3, 2014): [https://efotg.sc.egov.usda.gov/references/public/MA/MA-P-Index\\_Version3\\_May2014.xltx](https://efotg.sc.egov.usda.gov/references/public/MA/MA-P-Index_Version3_May2014.xltx)

-- by K. Campbell-Nelson, UMass Extension Vegetable Program

## Additional Funding Available for Water Conservation Projects Related to 2016 Drought

Recognizing the hardship that farms throughout the Commonwealth have faced during the 2016 growing season due to unprecedented drought conditions, Governor Charlie Baker and Lieutenant Governor Karyn Polito announced additional grant funding for water conservation projects to be released through the Massachusetts Department of Agricultural Resources (MDAR).

MDAR will administer \$250,000 of grant funding through its Agricultural Environmental Enhancement Program (AEEP) for water conservation projects that help farms reduce their operational impact on the environment and better prepare for, and recover after, this year's severe drought. Selected proposals will be reimbursed up to \$25,000 or 85% of total project costs of approved projects.

Agricultural operations interested in applying will need to **submit their Request for Response (RFR) by 4:00pm on January 6, 2017**. For a copy of the application, visit the [AEEP website](#) or call **617-626-1739**.

## 2017 Census of Agriculture Goes Online—Email Your Contact Info Now to be Included!

The Ag Census is a really important tool for understanding agriculture in our state, our region, and the nation. We at Extension depend on its accurate results for grant-writing and information gathering about our stakeholders, and now you can fill it out online! Please follow the link to have your farm counted! See the letter below from MA State Statistician for NASS, Gary Keough:

The U.S. Department of Agriculture's National Agricultural Statistics Service (NASS) is preparing the mail list for the 2017 Census of Agriculture. The Census of Agriculture is the leading source of facts and figures about American agriculture. Conducted every five years, the Census provides a detailed picture of U.S. farms and ranches and the people who operate them. It is the only source of uniform, comprehensive agricultural data for every state and county in the United States.

I am asking for your help to make the 2017 Census of Agriculture as accurate as possible. A major challenge is having a list of farmers that is as complete as possible, especially with so many new farmers. If you have never received a Census of Agriculture or survey questionnaire from NASS then we may not have you on our farm list. Please take a couple minutes and provide NASS your contact information at <https://www.agcounts.usda.gov/cgi-bin/counts/>.

Even if you do not think of yourself as a farmer or rancher, your operation is a farm if it meets the Census of Agriculture definition – an operation that sold or normally would have sold \$1,000 or more of agricultural products in a year. If you own or rent agricultural land, grow vegetables, grow horticultural or floricultural products, have fruit or nut trees, cattle, horses, poultry, hogs, bees, aquaculture products, or consider yourself a farmer or rancher, we need to hear from you.

All individual information provided to NASS is confidential and only used for statistical purposes. In accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws, your responses will be kept confidential and will not be disclosed in identifiable form to anyone other than employees or agents. By law, every employee and agent has taken an oath and is subject to a jail term, a fine, or both if he or she willfully discloses ANY identifiable information about you or your operation.

If you have previously received a Census of Agriculture or survey questionnaire from NASS then you will be receiving you 2017 Census of Agriculture questionnaire in late December 2017 or January 2018. Your cooperation is appreciated.

Sincerely,



Gary R. Keough, State Statistician  
 U.S. Department of Agriculture  
 National Agricultural Statistics Service  
 53 Pleasant St. Room 3450  
 Concord, NH 03301  
 T: 603-227-3129 | F: 603-225-1434 |  
 M: 603-568-6535  
[Gary\\_Keough@nass.usda.gov](mailto:Gary_Keough@nass.usda.gov)  
[www.nass.usda.gov](http://www.nass.usda.gov)

## **Job opportunity! New England Vegetable and Berry Growers Association Seeks New Secretary-Treasurer**

The New England Vegetable & Berry Growers Association (NEV&BGA) is a strong and progressive organization that offers wide-ranging initiatives supporting the well-being of the vegetable and berry industry throughout New England. It is the oldest vegetable growers' association in the United States and has been run by and for vegetable growers since 1886. With over 300 members from all five New England states, it is an active advocate for farmers, and works closely with Cooperative Extension to organize and co-sponsor educational programs including daylong meetings and the biennial New England Vegetable and Fruit Conference and Trade show in Manchester, NH. The Association supports Extension research projects with funding from members. It offers regular, commercial and associate memberships for growers and agricultural businesses. It is a non-profit membership organization with an Executive committee that includes representatives from all New England States.

The Secretary-Treasurer position has in recent history been held by retired or current Extension personnel, but this is a great opportunity for a farmer as well! This is a paid, part-time position. The hours are flexible, with the busiest times in the winter. It offers an opportunity to engage with growers and Extension educators and researchers from around the region and to support the Association's work and growth over the coming years.

### **The duties of the position include:**

- Pay all bills, receive all monies and maintain financial records and bank accounts.
- Send dues notices, meeting notices and other pertinent information to members.
- Meet with the Executive Committee to conduct the business of the organization, and maintain minutes of these meetings.
- Meet with the Program Committee to select topics for 2-3 annual daylong meetings, and then plan and organize these programs.
- Represent the Association at various meetings and functions and act as a primary contact person.
- On behalf of the Association, act as treasurer for the New England Vegetable and Fruit Conference and participate in the steering committee of the NEVFC.

For more information, or to apply contact: Lisa McKeag, Secretary-Treasurer, [secretary@nevbga.org](mailto:secretary@nevbga.org) or 917-573-5558

## **EVENTS**

### **The New England Vegetable and Berry Growers' Association & Cooperative Extension 593rd Growers' Meeting**

**When:** Friday, January 6, 2017

**Where:** Hadley, MA

There is a \$20 registration fee, which is waived for members of NEV&BGA. Lunch buffet is an additional \$20.

To register, visit our Eventbrite page: <https://goo.gl/dfZPXw>

or RSVP to 917-573-5558 or [secretary@nevbga.org](mailto:secretary@nevbga.org) by December 30

### **PROGRAM**

9:00 Registration

9:30 **Alternative Control of Cabbage Aphid in Brussels Sprouts** – Susan Scheufele, UMass Vegetable Program

10:30 **What's New with Crop Insurance?** – Tom Smiarowski and Paul Russell, UMass Risk Management Education

11:00 **Soil Health Assessments** – Dr. Brandon Smith, Northeast Region Team Leader, NRCS Soil Health Division

Noon Lunch buffet, \$20. To reserve a lunch, please contact the Secretary, Lisa McKeag at (917) 573-5558 or [secretary@nevbga.org](mailto:secretary@nevbga.org). If you order lunch and cannot attend, please call to cancel. We will have to bill you for unpaid meals.

1:00 **Managing Irrigation During Drought** – Trevor Hardy, Brookdale Fruit Farm and Irrigation Supplies

1:45 **Low Tunnels for Strawberries and Overwintering Onions** – Kaitlyn Orde and Becky Sideman, UNH

2:45 **Emerging Diseases Management Update: Dickeya and Beyond** – Angela Madeiras, UMass Diagnostic Lab

3:45 Adjourn

\*\* 2 Pesticide recertification credits have been approved for this meeting \*\*

Co-sponsored by the UMass Extension Risk Management/Crop Insurance Education Program

**Stay tuned for more details on the 594th Meeting on Saturday, February 4, 2017 in Hudson, MA.**

### [High Tunnel Production Conference](#)

**When:** Wednesday, December 14, 2016 from 9:30 am to 4:00 pm

**Where:** Radisson Manchester, 700 Elm Street, Manchester, NH

Do you want to fine-tune your management of crops, nutrients, pests and diseases in high tunnels? The AM session will focus on high tunnel tomatoes, discussing advanced cultural practices and soil fertility management. The PM session will focus on identification and management of diseases and insect pests of high tunnel crops. Throughout the day, there will be plenty of opportunities to share expertise and learn from one another in moderated farmer-to-farmer sessions.

**Register here:** <http://bit.ly/2ePCiUC>

### [Vegetable Winter School](#)

**When:** Tuesdays, January 10th, 2017 – February 28st, 2017 from 9am – 3:30pm

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

Register for this course designed to provide growers with regulatory certainty in a time of many regulatory changes. Leave winter school ready for a Commonwealth Quality Program (CQP) audit and the peace of mind that you are prepared to handle the requirements of: the Food Safety Modernization Act (FSMA), EPA Worker Protection Standards (WPS), Nutrient Management Regulations, and changes in Employment Law. Get up to date on research and IPM practices important to vegetable growers and gain a competitive advantage in a heavily regulated market. Each farm will get detailed support in developing food safety and nutrient management plans, training employees in WPS, developing standard operating procedures compliant with regulations, and preparing an employee handbook and a whole farm IPM plan. Twelve contact hours available for the vegetable pesticide license category. This course is designed for farm owners, managers and employees.

**Click here to register:** [regonline.com/vegwinterschool](http://regonline.com/vegwinterschool)

**Questions?** Contact: Katie Campbell-Nelson, [kcampbel@umass.edu](mailto:kcampbel@umass.edu), 413-545-1051

### [UMass Extension Floriculture Program's: Greenhouse Management and Production for 2017!](#)

**When:** January 11, 2017, 9:30-3:30

**Where:** Publick House, Sturbridge, MA

Our program this year will feature a little bit of “why we do what we do” as well as “how-to’s” for greenhouse management and production. Our final session will be a grower to grower panel and discussion on using alternatives to neonicotinoids to manage pests.

Topics and speakers:

- *Light, Temperature and Relative Humidity in Greenhouses, Dr. Ryan Dickson University of New Hampshire*
- *Irrigating Greenhouse Crops, Dr. Mandy Bayer, University of Massachusetts Extension*
- *Greenhouse Plant Nutrition, Dr. Rosa Raudales, University of Connecticut Extension*
- *Alternatives to Neonicotinoids for Managing Pests in Greenhouses*  
-Grower to Grower Panel, Kerri Stafford, Cavicchio Greenhouses and Amanda Gioacchini, Pioneer Gardens.  
(1 pesticide credit for this talk)

Mail-in or on-line registration available. (note -additional fee for on-line registration)

**Cost:** \$45/person, discount for additional registrations from same company.

### [Details and Registration](#)

## [NOFA-MA Winter Conference](#)

**When:** Saturday, January 14th, 2017 from 9am – 3:30pm

**Where:** Worcester State University

More than 70 popular workshops and experts from the field on organic farming, gardening, landscaping, homesteading, DIY skill building and soil/human/animal health. This year's keynote speaker will be Paul Kaiser from [Singing Frogs Farm](#) in Sonoma County, CA. Paul and his wife Elizabeth have been successfully demonstrating how to produce high volume, high quality vegetables in an inspiring no-till system since 2007.

- \* Sue Scheufele and Danya Teitelbaum will be discussing the SARE spinach project described in this newsletter. Come see us if you're interested in learning more about SARE projects, spinach disease management, and winter growing!
- \* Lisa McKeag and Michael Botelho (MDAR) will present an update on the Food Safety and Modernization Act's implementation in MA through the Commonwealth Quality Program.

Register online here: <http://www.nofamass.org/events/wc>

## [CISA's Mapping Out Your Farm Future Series](#)

**When:** January-March; Eight weeks

**Where:** Holyoke Community College Kittredge Center, Room 303 Homestead Ave, Holyoke, MA

CISA invites you to join our eight-workshop series on *Mapping Out Your Farm's Future: Settings Goals for the Success and Sustainability of Your Farm* beginning January 2017. In order to draw a map of the future of your farm, you need a solid foundation with which to review your past and assess your present. This workshop series will support farm owners and operators in decision making for realistic long-term financial, operational, marketing, and personal goals. Examples in the workshops will be farm related, but the skills and methodology will be relevant to all businesses.

Participation in the whole series is encouraged. You will be eligible for a one-on-one consultation by attending one Business Plan workshop. Attending three workshops gives you the eligibility for an additional one-on-one consultation related to the topic of any workshop being held. Dinner will be served at each session. The cost to attend the series is \$90 for Local Hero members, or \$15 for each individual workshop. The non-member fee is \$110 for the series, or \$18 for each individual workshop. **Register online at [buylocalfood.org](http://buylocalfood.org) or contact Stevie Schafenacker at [stevie@buylocalfood.org](mailto:stevie@buylocalfood.org) (413) 665-7100.** If cost is a barrier to your participation, please feel free to contact Stevie to discuss options as we want everyone to be able to get the training they need to effectively operate their business. Scholarships may be available.

The first half hour of each workshop will be for food and socializing. Workshops will begin promptly thereafter.

## [10th Annual SEMAP Ag & Food Conference](#)

**When:** Sunday, February 26th, 2017 from 9am – 3:30pm

**Where:** Bristol County Agricultural High School, 135 Center St., Dighton, MA

Whether you're a professional farmer, a backyard gardener, or just curious about locally grown food, this is the event for you! Each year, the lineup includes workshops for the general public as well as info-packed sessions for farmers and gardeners of all experience levels.

Registration includes a locally-sourced lunch and at the Resource Fair you'll learn about local organizations and businesses that provide services and products to help you grow, whether you've got a hundred acres or a couple of window boxes.

- \*Sue Scheufele, UMass Extension staff will be giving a talk on Cucurbit IPM.
- \* Lisa McKeag will present an update on FSMA implementation in MA.

Look for more details and registration info coming soon!

[2017 Winter Flower Growers Program—Co-sponsored by Massachusetts Flower Growers Association and UMass Extension](#)

**When:** February 8, 2017

**Where:** D&D Farms Inc., Stow, MA

Program Preview – with more to come:

\*Respirator Fit Test Training, Al Sorensen, UMass Public Health

Reading and Analyzing Your Fertilizer Bag, Cari Peters , JR Peters Inc.

\*5 Ways to Create Continuous Biocontrol in Greenhouses, Carol Glenister, IPM Laboratories

Using Social Media to Benefit Your Business – Grower and Retailer Panel

Also... Allied Trade Tables and \*2 pesticide credits

Mail-in registration using form below or print off form from website and mail.

More details and registration form: <http://ag.umass.edu/greenhouse-floriculture>

## SPONSORS



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

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