



UMass  
Extension

# Vegetable Notes

For Vegetable Farmers in Massachusetts since 1975



Volume 35, Number 2

February 16, 2023

## IN THIS ISSUE:

- Crop Conditions
- Cladosporium Leaf Spot of Spinach
- A Tool for Making More Informed Irrigation Decisions:  
The Climate Smart Farming Water Deficit Calculator
- Massachusetts's Nutrient Management Regulations: A  
Reminder for Vegetable Producers
- News
- Events
- Sponsors

## CROP CONDITIONS

This winter had been a fairly mild one until early-February, when temperatures dropped to -13°F with wind chills of -25! The sudden and extreme cold and wind burst pipes, damaged high tunnels, and injured peach buds in many locations. And then, just as quickly as it arrived, the cold weather departed and now it feels like spring is right around the corner! Surely this warm spell also will not last, but the excitement is building for the coming season—crop planning, seed ordering, hiring, getting CSAs filled-up, and dialing in market plans. As you prepare for the coming season, get in touch with our team of educators if you have questions about soil tests, fertility plans, varieties, pest

control, production practices, food safety, and on and on—that's why we're here! If we don't know the answer right away, we will track it down for you. We can help over the phone, set up a Zoom consultation, or come to your farm.

In that vein, we want to draw your attention to a bunch of resources on our website that often get overlooked. You are always welcome to email us at [umassveg@umass.edu](mailto:umassveg@umass.edu) or call at 413-577-3976, or:

Reach out  
to us!



Ask a Question

Request a Crop/Pest  
Planning Meeting

Request a Farm  
Visit

Our team (Sue, Lisa, Genevieve, Hannah, and Maggie) receive all of these requests and will respond within a few days. We also have a plethora of resources on our website. One of the most useful is the Veg Notes archive, which you can search for specific articles in past issues.

Explore  
our online  
resources!



Search the Veg Notes  
archive

Fact Sheets

Research Reports

Pest Scouting Guides

2023-24 New England  
Vegetable Management  
Guide Online

We hope to see many of you at the upcoming New England Veg & Berry Growers' Association meeting next Saturday (Feb 25) at Wilson Farm in Lexington! Come to hear about Jim Wilson's experiences on farms in Chile, URI vegetable variety trials, the history of PFAs in Maine, squash and strawberry disease research updates, and cleaning and sanitizing for food safety, as well as a facilitated discussion of farm labor. We'll have the new issue of the Veg Management Guide available for sale there, so come pick one up and say hi!

## CONTACT US:

Contact the UMass Extension Vegetable Program with your farm-related questions, any time of the year. We always do our best to respond to all inquiries. **Office phone:** (413) 577-3976 **Email:** [umassveg@umass.edu](mailto:umassveg@umass.edu)

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

## CLADOSPORIUM LEAF SPOT OF SPINACH

We are seeing *Cladosporium* leaf spot in our spinach variety trial – a common occurrence in late winter spinach. This disease is relatively unstudied in the Northeast but we've seen it every year for the last several years in our greenhouse trial spinach, and we receive reports from growers every winter.

**Identification.** *Cladosporium* leaf spot is caused by the fungal pathogen *Cladosporium variabile*. Early leaf spots are tan colored, and expand to 1-3 mm in diameter. Adjacent spots may coalesce, forming irregular lesions. As the disease develops, velvety dark green-brown sporulation develops within the lesions. In severe cases, older infected leaves may be killed.

**Life Cycle.** Development of *Cladosporium* leaf spot is favored by cool, humid environmental conditions that often occur in the fall and in winter high tunnels in New England. Optimum conditions for infection are 59-68°F and relative humidity above 80%, but infection can occur at temperatures between 50 and 86°C and the fungus can continue growing at temperatures as low as 41°F.

In the absence of a spinach crop, *Cladosporium* may overwinter on crop residue, spinach volunteers, and weed hosts (although it has not been confirmed which weeds serve as hosts for this diseases). Viable spores of *Cladosporium* have been isolated from dried spinach leaves and seed up to 8 years old. In the field, spores are spread by splashing water, wind, workers, and equipment.

*Cladosporium* can be seed-borne; in one 2006 study from Washington State University, *Cladosporium* was found infesting 37 out of 66 seed lots tested, with infestation levels ranging from 0-49%. Under the right environmental conditions, it's likely that seed contamination could lead to infected seedlings, although this hasn't yet been confirmed in the field, only in a controlled greenhouse environment.

### **Cultural Controls & Prevention**

- Till under crop residues promptly after harvest to speed up decomposition.
- Hot water seed treatment can effectively eliminate *Cladosporium* from spinach seed. Researchers at Washington State University found that treating infested seed at 40°C/104°F for 10 minutes sufficiently eliminated *Cladosporium* and did not decrease germination. See the [January 13, 2022 issue of Veg Notes](#) to learn about hot water treating your own seed, or [click here to learn about the UMass Vegetable Program Hot Water Seed Treatment Service](#).
- Chlorine seed treatment also effectively eliminates *Cladosporium* from spinach seed and does not reduce germination. Soak seed for 10 minutes in a 1.2% sodium hypochlorite (NaOCl) solution. NaOCl is the active ingredient in bleach; different bleach products have different percentages of NaOCl, with 5.25% being a common concentration. To make a 1.2% NaOCl solution from a common 5.25% NaOCl product, dilute bleach with water at a 1:3 ratio. There are many bleach solution calculators available online (here's an example). Note for dilution calculators: 1000ppm = 1%.



*Cladosporium* leaf spot in spinach. Photo: G. Higgins

- Use drip irrigation or overhead irrigate early in the day on sunny days, when possible, so that crop foliage will dry quickly.
- Control weeds within your crop, as well as around the outside edge of high tunnels, both to increase air flow and eliminate possible weed hosts.
- Variation in susceptibility to *Cladosporium* between spinach varieties has been noted in the field, but resistance is not regularly evaluated for commercially available varieties.

**Chemical Controls.** Few products are labeled specifically for *Cladosporium* leaf spot in spinach and little research has been conducted on chemical control of this disease. QoI fungicides, commonly known as strobilurins, (FRAC Group 11) have been shown to effectively control this disease. Group 11 products that are labeled for spinach include Quadris (note: Quadris Top and Opti are not labelled for use on spinach), Reason, and Cabrio, and combination products including Merivon (groups 7 & 11) and Tanos (groups 27 & 11). In one University of Florida trial that evaluated several QoI products Cabrio and Merivon provided better control than Tanos, although all three significantly reduced the incidence of *Cladosporium* leaf spot. In the same trial, Switch (9 + 12) also significantly reduced *Cladosporium* incidence but performed worse than the QoI materials.

Because QoI fungicides have a single-site mode of action, pathogens frequently develop resistance to this group of fungicides. A few rules of thumb for using materials in FRAC group 11 are:

- Limit the total number of QoI applications. Product labels often provide information on maximum number of applications allowed per season. If no guidelines are given, make no more than three applications.
- Use a maximum of one QoI spray out of every three fungicide applications when using QoI alone (as opposed to a tank mix or combination product).
- Use a maximum of one QoI spray out of every three fungicide applications when using a tank mix or combination product.
- Do not make consecutive applications of QoI fungicides.
- Tank mix with a contact fungicide or use a combination product containing a contact fungicide (e.g. chlorothalonil, mancozeb, sulfur, oil).

Copper products are effective protectants for this disease but must be applied before the disease begins to develop.

No research has been conducted on control of *Cladosporium* with OMRI-listed products. Copper is the most effective OMRI-listed material for controlling foliar fungal diseases, in general. Adding a *Bacillus subtilis* (e.g. Serenade) or *Bacillus amyloliquefaciens* (e.g. Double Nickel, Stargus, Taegro, Triathlon) product to copper has a synergistic effect, meaning that applying copper + *Bacillus* provides better control than either product alone. Hydrogen dioxide products (e.g. Oxi-Date) will kill spores on contact but does not kill the fungus within the plant or offer any protection against future infections.

*--Written by Genevieve Higgins, UMass Vegetable Program*

## **A TOOL FOR MAKING MORE INFORMED IRRIGATION DECISIONS: THE CLIMATE SMART FARMING WATER DEFICIT CALCULATOR**

*--Written by Elizabeth Buck, Fresh Market Vegetable Specialist, Cornell Cooperative Extension Vegetable Program*

*[Ed. Note: This article was written by an Extension Specialist in New York, but the climate trends described are true in Massachusetts and throughout the Northeast as well.]*

It's no secret that we're running into more frequent and intense drought-related issues throughout NY's vegetable producing regions. Dry conditions around planting disrupts uniform seed emergence, diminishes final stand, inhibits herbicide activity, and delays weed germination. Of course, all four of these conditions compound upon each other to favor weed dominance and leave you stuck in a game of catch up in an uneven, economically hamstrung planting. Yes, there's an integrated weed management concept worked into this irrigation article...surprise!



None of that information is exactly earth shattering, right? You're all good farmers, you know that irrigation is important. But the reality is, most of the farms I visit just don't have access to enough irrigation water, infrastructure, and labor to comfortably keep up with watering crops during droughts. And of those three limitations, the water source is often the largest challenge, the hardest and most costly to change.

We have a long history of getting by with surface water, with having enough flow in streams and frequent enough rain to carry crops through most of the growing season or at least to reliably refill farm ponds during the growing season. But things are changing and it is common now for segments of WNY to experience several weeks of abnormally dry or drought conditions during the summer. Too often ponds aren't recharging, streams are flowing low, and the rain comes too fast to soak in. You all know irrigation is important during this period. The tricky part is figuring out how best to allocate the water you do have.

The Cornell Climate Smart Farming Water Deficit Calculator is a user-friendly tool that can help you better select which crops to water first by understanding the pattern of past and predicted water depletion in your field, and it only takes 3-5 minutes. The model uses your description of general soil type to determine how much water your soil can hold, how quickly water moves into and drains out of your soil, and the water deficit at which plants begin experiencing physiological (non-wilting) stress or severe (wilting) stress. Weather station observations combined with high-resolution radar allow the tool to detect rainfall and appropriately increase the amount of water available in the root zone at that location. Growers can also add the date of their last irrigation.

Most importantly, the CSF Water Deficit Calculator takes the different evapotranspiration rates of different types of crops into account. Evapotranspiration is the combined loss of soil water to the air from regular evaporation and from plant transpiration and determines how fast your soil loses water. Evapotranspiration varies greatly based on crop height and total size, leaf characteristics, temperature, humidity, wind speed, amount of sunshine, and crop drought status. The tool allows you to pick from 10 different crop type groupings (developed to model 24 different vegetables & 4 field crops - see Image 1) so you can have an accurate representation of water draw-down.

To use the tool, set your location, your broad soil type (sand, loam/silt, or clay), your crop grouping, and your planting date. The tool will populate with the observed soil water availability from March 1 to today's date of the current year, or you can look at past years. I am using 2020 data in this illustration. The inches of water deficit are tracked on the vertical axis and the date along the horizontal axis. The planting date will show up as a dashed, vertical gray line. Every time it rains the tool calculates if the rainfall was enough to bring the soil completely or only partially back to full water status.

The water deficit of the field is plotted out in a graph - see Image 2 for an example. There are set lines running horizontally across the chart marking separate stress zones. The inches of water deficit that define the top and bottom of each stress zone are a function of the type of soil you have, and are well-accepted values backed by soil science. Green dots represent days when the field is fully or over saturated. Yellow dots represent days when the field is below full water capacity and above the point when plants begin to experience physiological drought stress. The yellow zone is the normal, productive growing condition for crops. Orange dots fall in the physiological stress zone and represent undesirable conditions that may not be entirely obvious upon a casual observation of the field. Red dots indicate severe water deficit, wilting, and

## Looking for more information about managing drought stress in vegetable crops?

The [Cornell Climate Smart Farming Video page](#) has many good resources, including a [Drought Deficit Calculator Tool Tutorial](#). They also host webinars that may include drought management topics and will post webinar recordings to this page.

### Crop Type Groups

GROUP	MEMBERS
<b>Cereals</b>	Corn(Field), Oats, Wheat(Winter)
<b>Forages</b>	Alfalfa Hay, Clover Hay
<b>Legumes</b>	Beans(Green), Peas
<b>Roots and Tubers</b>	Potato, Sweet Potato
<b>Vegetables (Small) - Short Season</b>	Broccoli, Carrots, Lettuce, Spinach
<b>Vegetables (Small) - Long Season</b>	Brussel Sprouts, Cabbage, Cauliflower, Celery, Onions(dry)
<b>Vegetables (Solanum Family)</b>	Eggplant, Peppers(Bell), Tomato
<b>Vegetables (Cucumber Family)</b>	Cantaloupe, Cucumber, Pumpkin/Winter Squash, Squash/Zucchini, Sweet Melons, Watermelon

Image 1. The CSF Water Deficit Calculator's list of 28 crops (right column) and their associated crop type groupings (left column, bold text) used to model evapotranspiration and inform soil water availability and draw-down predictions.

severe plant stress.

You want to irrigate your field in the orange zone to minimize plant stress. Under water limited scenarios, you want to irrigate your field frequently and heavily enough to prevent it from entering the red zone. If you enter an irrigation date, a dashed vertical blue line will appear.

The tool currently assumes that any irrigation will restore the soil water availability to 100%, which is also called field capacity. The developers know that in real life it sometimes isn't possible to bring the soil back up to full water status, especially when you're limited by the capacity of your irrigation source. The current goal is to add a new feature to the next update that will allow growers to input the amount of their last irrigation to further increase the accuracy of the tool. Case studies have shown that the current version of the CSF Water Deficit Calculator is still a useful irrigation management tool.

You can highlight a section of the field season to zoom in on a specific cropping window. As you mouse over the graph you will highlight different dates. In the bottom left, the date and the water deficit for that date appears color coded to the stress zone your crops experienced. The two panels below show the water deficit on July 11th. The top panel is the situation without irrigation, and the bottom panel shows the impact of a complete irrigation on July 6th, when the crop was in the upper portion of the orange, physiological stress zone. The unirrigated field experienced 3 orange and 3 red stress days between 7/6 and 7/11/2020, while the irrigated field experienced only two orange days. You can see that the water deficit in the irrigated field (bottom) was only  $-0.7''$  on 7/11 while the unirrigated field (top) was  $-0.95''$ . While that may seem like a small difference, that quarter inch makes a huge difference in crop stress.

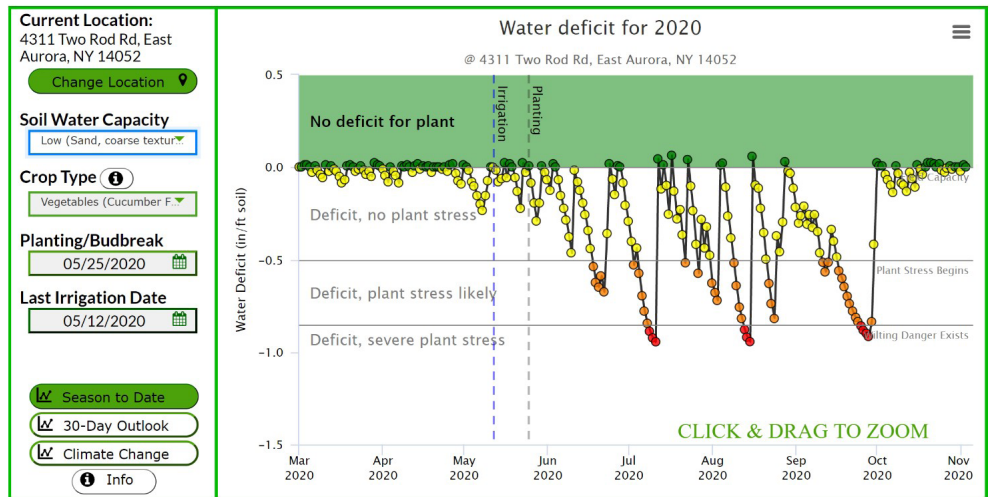
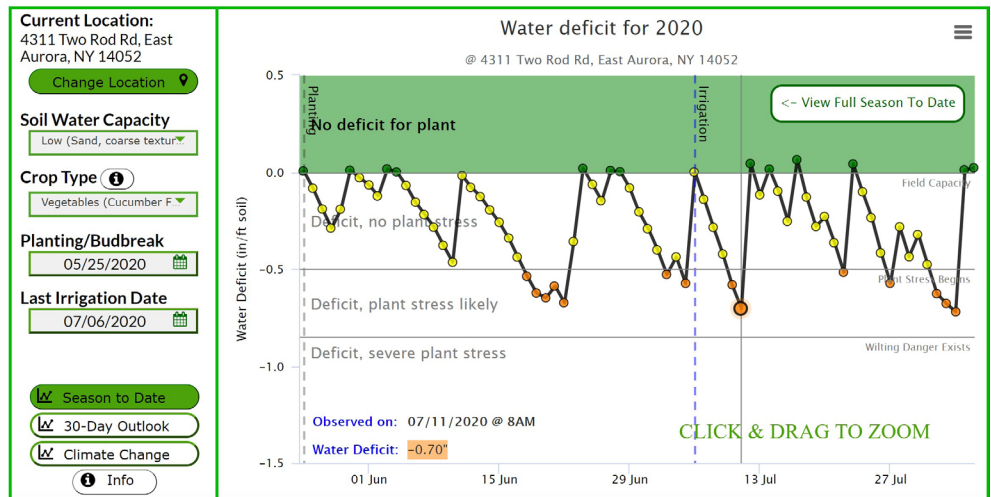
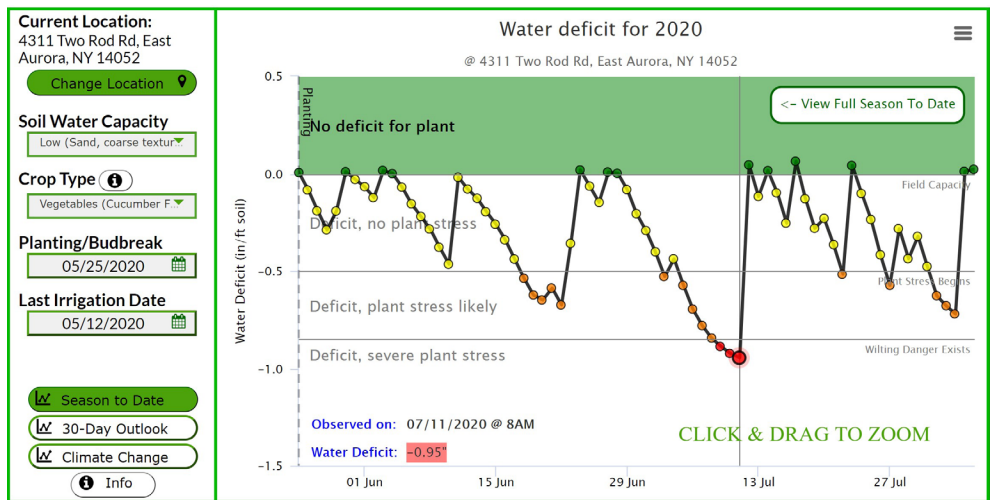


Image 2. A screen shot of the CSF Water Deficit Calculator set to show the observed soil water availability and plant stress for a sandy field of cucumbers located in East Aurora, NY planted on May 25, 2020. Note the dashed vertical gray planting date line and vertical dashed blue line for date of last irrigation.



Images 3 and 4. The CSF Water Deficit Calculator chart for a cucurbit field on sandy soils in East Aurora in 2020 showing the difference in soil water deficit on July 11 as a result of no irrigation (top) or irrigation (bottom) occurring on July 6th. The irrigated field has 4 fewer days of stress and experienced no severe drought stress between July 7 and 12.

During the field season, the tool offers a prediction of upcoming soil water deficit (drought) conditions using the short-term forecast, current water status, and longer-range weather modelling. That feature is only available during the field season, but you can watch tutorials on that feature at: <http://climatesmartfarming.org/videos/>.

## **MASSACHUSETTS' NUTRIENT MANAGEMENT REGULATIONS: A REMINDER FOR VEGETABLE PRODUCERS**

With the spring-like weather this week, growers' minds may be turning to field prep. We thought we'd take this opportunity to remind agricultural producers and land managers about the plant nutrient management regulations in Massachusetts and how to comply with them.

In accordance with Chapter 262 of the Acts of 2012, on December 5, 2015, [Plant Nutrient Regulations \(330 CMR 31.00\)](#) went into effect in the Commonwealth of Massachusetts establishing limitations on when and where plant nutrients may be applied to land, including agricultural lands. The regulation was later amended in 2018. See the [Plant Nutrient Management](#) page at Mass.gov for more information, including fact sheets for applications to [agricultural land](#), as well as for [turf and lawn applications](#). Additionally, in accordance with limited legislative authority, some towns on Cape Cod and the Islands developed their own sets of regulations by municipality, and those may be found [here](#). All regulations relative to plant nutrients in the Commonwealth must be consistent with Chapter 262 of the Acts of 2012.

While nitrogen, phosphorus, and potassium are required for plant growth, excessive amounts of these nutrients can cause pollution of surface and groundwaters. Nutrient pollution leads to algal blooms that choke out other aquatic organisms and can release toxins into the water. Sources of nutrient pollution include fertilizers and animal manures. The purpose of this regulation is to prevent non-point source pollution of surface and groundwaters from these sources. The limitations placed on nutrient applications are meant to ensure that plants receive sufficient nutrients while human health and environmental impacts are minimized. The Massachusetts Department of Agricultural Resources (MDAR) is responsible for enforcing the regulation.

### **The law requires adherence to UMass Extension Guidelines**

With respect to *agricultural lands*, the law requires that plant nutrients be applied according to UMass Extension Guidelines for plant nutrient management. When UMass does not offer any guidelines because local research is not available or we do not have the expertise, equivalent extension service standards or standard industry practices must be followed. UMass Guidelines include that plant nutrient applications should be made based on results of soil fertility testing, crop need, and availability of nutrients from plant nutrient materials.

UMass guidelines related to nutrient management can be found on the UMass website: [Nutrient Management for Vegetable Production](#). (Find resources for producers of other commodities [here](#).) These include links to information in the [Cultural practices section of the New England Vegetable Management Guide](#) about soil fertility fundamentals, different types of fertilizers and their nutrient content, the amount of nutrients removed from the soil by different crops, and soil testing protocols and interpretation. There is also a [template for fertilizer record keeping](#) (from UVM Extension) to help with calculating and recording nutrient applications.

UMass Guidelines recommend use of the Modified Morgan extraction method for soil testing because this method has over 50 years of calibration and correlation data showing crop response to nutrient applications in the field. Labs with the Modified Morgan extraction method include: [UMass](#), [UMaine](#), [UVM](#), [UConn](#), [Dairy One \(Cornell\)](#) and [Spectrum Analytic](#).

### **Specific restrictions and setbacks ([section 31.03 of the regulations](#))**

The law specifically prohibits application of plant nutrients directly to surface waters. Applicators also must not apply plant nutrients to saturated soils or to frequently flooded soils when flooding is expected. There are also limits on applications to frozen or snow-covered soil. Plant nutrients may not be applied to soil that is frozen (to at least 2 inches deep) or snow-covered (with one or more inch of snow or ½ inch or more of ice) unless they are agricultural byproducts or process waters that meet the conditions described in [330 CMR 31:03\(3\)](#).

The law also requires specific **setbacks** from sensitive areas. No applications may be made:

- Within 100 feet of surface water used for public water supplies
- In a Zone I of a public water supply well
- Using a broadcast method within 50 feet of surface waters (or 25 feet if there is a vegetative buffer present)
- By band, side dress or injection within 10 feet of surface waters
- On pastures and hayfields within 10 feet of surface waters

### **Nutrient Management Plans**

Any person who applies plant nutrients to agricultural land must comply with UMass Guidance and this information constitutes the management plan for the operation. For any farm making nutrient applications to 10 or more acres, operators of agricultural operations must maintain a plan containing information about their nutrient applications. If preparing a plan yourself, use the checklist at the end of this article. Use links to websites from the checklist as options for preparing each portion. The mapping software available online is particularly helpful. Plans are the responsibility of the land manager, though they may be developed by a crop consultant. Farms with an NRCS 590 Conservation Plan are in compliance with this portion of the regulation. Plans are to be kept on-farm in case of an inspection by MDAR.

If you have questions about the Plant Nutrient Regulations, contact Hotze Wijnja, MDAR Chemist, Crop & Pest Services: 617-626-1771 [Hotze.Wijnja@state.ma.us](mailto:Hotze.Wijnja@state.ma.us)

### **Nutrient Management Plan Checklist:**

- Operator name and address
- Location of all land under Plan (addresses or GPS coordinates)
- Date the Plan was prepared or updated
- Period of time the Plan covers (may be up to 3 years unless there is a change in management practice)
- Name and contact information of the person responsible for the Plan development
- Map or aerial photograph, which shall include: field boundaries, field names, field acreage, location of surface waters and public supply wells, and setbacks if present.
  - [Google Maps area calculator](#) allows you to calculate field acreage easily
  - [MassMapper](#) online mapping tool allows you to find and mark public water supplies, and Zone Is on your land
  - [Web Soil Survey](#) allows you to map soil types on your land
- Current and/or planned crop and crop rotation for each field or management unit.
- Determination of nutrient needs for crop production based on test results, nutrient credits from preceding crops, and UMass guidelines.
  - Most recommendations for vegetable crops are available in the New England Vegetable Management Guide: <https://nevegetable.org>. It is not necessary to copy crop nutrient needs from this publication into your plan as long as a web link or hard copy of the book is being used.
- Determination of whether a Nutrient Application Rate should be based on nitrogen or phosphorus as a limiting factor.
  - High, above optimum, or excessive phosphorus soils: Recommendations for fields with soils containing a high or excessive phosphorus level shall follow UMass Guidelines for high-phosphorus soils. Recommendations for nutrient application rates on high-phosphorus soils may be refined by conducting a risk assessment of phosphorus loss to surface waters, including the use of the Massachusetts NRCS Phosphorus Runoff Index or UMass recommended risk assessment procedures for high-phosphorus soils.
- Inventory of agricultural byproducts and nutrient sources
- Timing and amount and method of application for each field

### **Record Keeping Checklist:**

- Soil test results and recommended nutrient application rates
- Quantities, analyses, and sources of plant nutrients applied



- Dates and methods of nutrient application
- Crops planted and estimated yields
- All activities or protocols recommended or required by the plan.

**Plan Updates and Revisions:** Operations that are required to keep a plan are also required to review and update their plan. See [330 CMR 31:04\(4\)](#) for more information.

*--By Katie Campbell-Nelson, UMass Extension; updated by Lisa McKeag, UMass Vegetable Program, and reviewed and edited by Hotze Wijnja and Jessica Burgess, MDAR, for 2023*

## NEWS

### URBAN AG EXTENSION FACULTY POSITION AT UMASS - ACCEPTING APPLICATIONS NOW

UMass Amherst is hiring a new Urban Agriculture Extension faculty member, based at UMass Amherst's Stockbridge School of Agriculture. [Click here to view the job description and apply.](#)

### 2022 CENSUS OF AGRICULTURE - STILL TIME TO RESPOND

Farmers and ranchers still have time to be counted in the 2022 Census of Agriculture, according to the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS). Although the deadline for submitting the ag census has just passed, NASS will continue to accept completed census questionnaires through the spring to ensure all farmers and ranchers take advantage of the opportunity to be represented in the widely used data.

NASS will continue to follow up with producers through the spring with mailings, phone calls, and personal visits. Farmers and ranchers are encouraged to complete their ag census either online at [agcounts.usda.gov](https://agcounts.usda.gov) or by mail as soon as possible.

### NORTHEAST FOODS FOR SCHOOLS – OPPORTUNITY FOR LOCAL AND SOCIALLY DISADVANTAGED FARMERS AND PRODUCERS

The U.S. Department of Agriculture's Agricultural Marketing Service recently signed a [cooperative agreement](#) with the Massachusetts Department of Elementary and Secondary Education for more than \$3.5 million to improve child nutrition and build new relationships between schools and local farmers. [Massachusetts Farm to School](#) is collaborating with local producers to support connections with schools that are receiving the funds. Farmers interested in selling to schools are encouraged to reach out to Simca Horwitz ([simca@massfarmtoschool.org](mailto:simca@massfarmtoschool.org)) for more information or with any questions.

A key goal of the [Northeast Foods For Schools](#) is to create new procurement relationships between schools and Socially Disadvantaged farmers and small businesses. To that end, MDAR is supporting this effort by establishing a database of Socially Disadvantaged farmers to ensure that self-identified farmers are kept informed of the process. The more individuals we can reach, the more effective our work will be in the future.

Please complete [this form](#) to self-identify as a Socially Disadvantaged farmer or producer. If you have any questions about how your information will be used, please contact [Rebecca.Davidson@mass.gov](mailto:Rebecca.Davidson@mass.gov).

### UMAINE SURVEY ON SHALLOW WELLS

Novel shallow wells are a relatively new technology that functions like an artificial underground aquifer. They can be relatively inexpensive to install, and in some locations provide very safe, reliable sources of water. UMaine is preparing a project to test the design under various soil and environmental conditions. To better understand farmers' (and other people's) interest in a new shallow well design, UMaine is seeking responses to this VERY BRIEF survey. Please share your perspective here, [https://umaine.qualtrics.com/jfe/form/SV\\_bymaF04LN7gw5Gm](https://umaine.qualtrics.com/jfe/form/SV_bymaF04LN7gw5Gm)

### URI POTATO RESEARCH QUESTIONS

Gabrielle Torphy, a member of the URI agronomy farm staff, will be conducting research on potato production meth-



ods this upcoming spring. She is looking for feedback from growers about spacing and planting depth. Please reach out to her ([gtorphy@uri.edu](mailto:gtorphy@uri.edu)) if you are willing to share this basic production information and/or if you have any questions about this research project. Thank you!

### ELDERBERRY GROWER SURVEY

Colleagues at the University of Missouri have received a large grant to study elderberry production. As part of this project, they are interested in hearing from elderberry growers through a short (15min) online survey. The anonymous survey asks about elderberry production and marketing. Participants have the chance to win one of ten \$100 Amazon e-gift cards. They will also receive a summary letter of the survey results to learn about the study findings.

[Click here to take the survey.](#)

Questions? Contact Teo Skevas, [skevast@umsystem.edu](mailto:skevast@umsystem.edu).

### 2023-24 NEW ENGLAND VEGETABLE MANAGEMENT GUIDE AVAILABLE NOW!

The 2023-2024 Vegetable Guide is now available for purchase from the UMass Extension Bookstore: <https://extensionsalesportal-umass.nbsstore.net/>

A collaborative project of the Cooperative Extension vegetable programs in the six New England States, this guide provides both conventional and organic commercial vegetable growers, on small and large farms, with up-to-date production and pest management information.

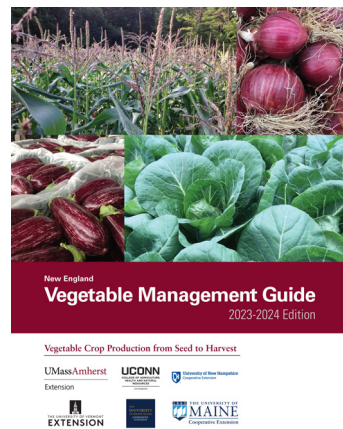
The 2023-2024 New England Vegetable Management Guide is a comprehensive guide to current production and pest management techniques for commercial vegetable crops. There are in-depth sections on cultural practices, vegetable transplant production, integrated pest management for insects, weeds and diseases, and on individual vegetable crops.

Buy the Guide by itself, or as a package with the Northeast Vegetable & Strawberry Pest ID Guide. The Pest ID Guide contains over 200 full-color images of the weeds, insects, diseases, and disorders that may be affecting your crops, and beneficial insects too. The Pest ID Guide is an indispensable companion to the Veg Guide, and you save when you buy them together! (Note: the Pest ID Guide was not updated for this year, so if you already have this book you can hang onto that one).

Guide pricing:

- 2016-2017 New England Vegetable Management Guide alone: \$40.00
- Northeast Vegetable & Strawberry Pest Identification Guide alone: \$15.00
- Veg Guide & Pest ID combo pack: \$50.00

As always, the online version of the Guide is also accessible for free at <http://www.nevegetable.org>, where you can also download a pdf of the Pest ID Guide.



*Click on the image to order online!*

### MDAR FOOD SECURITY INFRASTRUCTURE FY2024 GRANT PROGRAM RFR POSTED

This program seeks to ensure that farmers, fisherman and other local food producers are better connected to a strong, resilient food system to help mitigate future food supply and distribution disruption, as well as ensuring that individuals and families throughout the Commonwealth have access to food, with a special focus on food that is produced locally and food that is equitably accessible. Deadline March 2, 2023.

[COMMBUYS direct link here](#)

[FSIG Program details here](#)

### RURAL ENERGY FOR AMERICA PROGRAM (REAP)

The next REAP deadline for renewable energy and energy efficiency grants and loan guarantees is March 31, 2023.

For more information on applying, [click here](#), and please note that **the percentage of project costs applicants can request has recently increased from 25% to 40%**. MFEP will be hosting a webinar about applying to this grant in February, so be on the lookout for more information, coming soon. If you have questions about the REAP grant in the meantime, [email](#) the Massachusetts Farm Energy Program or call 413-727-3090.

## CISA CLIMATE MITIGATION & ADAPTATION MINI-GRANTS

CISA offers grants of up to \$3,000 on a rolling-application basis to support farms and farm-related businesses implementing or expanding practices that foster adaptation to climate change and contribute to the resilience of the local food system. Funds can be used for consultations with experts, project design and planning, grant writing, and general advice and mentorship from CISA's technical assistance providers and other farmers.

Those interested in improving and/or implementing climate change adaptation practices and who demonstrate a commitment to building an inclusive and resilient food system are encouraged to apply now. Grants are open to Massachusetts farmers in Hampshire, Hampden and Franklin Counties.

To learn more, click [HERE](#). To apply for a loan, complete the [Climate Change Adaptation Grant Application Form](#) or contact [Stephen Taranto](#) at 413-665-7100, ext. 17.

## PESTICIDE LICENSE RENEWAL TIME

Please be reminded that Massachusetts Pesticide Licenses expire each calendar year. MDAR uses the publicly accessible online system known as the EEA ePLACE Portal and no longer sends the hardcopy renewal forms via U.S. Mail. Please renew your license online using this system. You should have received an email reminder on Sunday, October 2nd asking you to renew your pesticide license. If you have not done so, please visit the EEA ePLACE Portal, log into your account, and complete your renewal. If you forgot your password or security questions or otherwise need help logging into your account, please contact the ePLACE Help Desk at (844) 733-7522. If you have questions or issues renewing your pesticide license, please send email to [pestexamlicense@mass.gov](mailto:pestexamlicense@mass.gov). You may also leave a voice message at on the Pesticide Examination and License Hotline at (508) 281-6787.

New pesticide license applicants will need to create an EEA ePLACE Portal Account and register for their exam. Creating an account in the Portal is a simple process. Each account is specific to the individual applicant. While companies may sponsor their employees, they CANNOT create a company account on behalf of their employees. Follow the instructions in [this presentation](#) to register. Please visit MDAR's [Examination and Licensing website](#) to find helpful step-by-step guides and information for all your pesticide examination and licensing needs.

EEA ePLACE Portal - <https://eplace.eea.mass.gov>

## NEW FACTSHEETS ON SOIL-WATER MONITORING RELEASED BY UMAINE AND UVM

The University of Maine Agroecology Lab, UMaine Extension, and University of Vermont Extension recently released two new fact sheets designed to explain the basics of [soil water availability, relevant technology](#) (hardware and software), and [costs associated with these practices](#). We hope these factsheets are useful to growers and agricultural advisors.

## EVENTS

### ONLINE FARM STRESS MANAGEMENT TRAINING

#### When:

- For all Massachusetts farmers: TODAY! Thursday, February 16, 6-8pm
- For state and federal staff, partner organizations and farming supporters: Tuesday, February 21, 10am-12pm or Wednesday, March 1, 2pm-4pm
- For our Spanish-speaking farming community: Thursday, March 9, 6 – 8 pm in Spanish

**Where:** Virtual

**Registration:** [Click here to register](#).

The MassGrownWellness peer-based stress management training programs continue to be offered for all Massachusetts's farmers, state and federal staff, partner organization and supporters of the Commonwealth's agriculture community into early March. These peer-based training programs help attendees recognize signs of farm stress, de-escalate difficult circumstances, and have the ability to refer services and resources that may help.

The trainings are free, and all are welcome. Attendees will receive the training and reference materials as well as an update on future MassGrownWellness programs, including a statewide peer support network currently in development.

The remaining trainings are all being offered online. For more information on all of these trainings and registration, please visit [mass.gov/massgrownwellness](https://mass.gov/massgrownwellness).

### **UPCOMING SCRUB WINTER TWILIGHTS**

**When:** Tuesdays, February 21 - March 14, 4-5:30pm

**Where:** Virtual

**Registration:** [Click here to register.](#)

This SCRUB (Sanitizing and Cleaning Resources for Your Business) webinar series is part of a project led by the University of Vermont, Cornell University, and Michigan State University Extensions and the National Farmers Union.

- February 21: Workarounds in Washing Greens That You Can't Live Without
- February 28: Parent, Farmer, Wash/pack Manager. Strategies to Keep Kids Happy Employees Engaged, and Produce Safety Risks Low
- March 7: NOT Cleaning with Water and Other Things NOT to Do That You Think You Should Be Doing
- March 14: How to Work with Contractors on Your Farm Building Construction Project

See <http://go.uvm.edu/scrubevents> for full descriptions and more information.

### **UMASS EXTENSION'S INVASIVE INSECT WEBINAR SERIES 2023**

**When:** Final Webinar: Wednesday, February 22, 2023, 9am-11:45am

**Where:** Online

**Registration:** Free! [Click here to register.](#)

Join UMass Extension's Landscape, Nursery, and Urban Forestry Program and UMass Extension's Fruit Program presents for the final webinar in this series focusing on the impact, monitoring, and management of invasive insects in Massachusetts and the nation! Topics of this final webinar will be the beech leaf disease nematode and invasive forest insects. Please note: while participants from anywhere are invited to attend, much of the material presented will be specific to MA and New England.

### **2023 EASTERN NY FRUIT & VEGETABLE CONFERENCE**

**When:** Wednesday and Thursday, February 22-23, 2023

**Where:** The Desmond Hotel & Conference Center, Albany, NY

**Registration:** Regular conference registration starts at \$80/person/day for ENYCHP contributors. Discounts for multi-day and multi attendees from same farm exist. Walk-in registration is \$130 per person per day. [Click here to register.](#)

We are back in-person after three years with two full days of informative sessions, many of which will offer DEC credits, PLUS the full Trade Show. After the sessions on Wednesday, plan to attend the Trade Show Social and enjoy light hors d'oeuvres, relax and mingle with vendors, conference attendees and your peers. A pre-conference produce safety training is also scheduled, see details and registration info below.

[Click here for more information.](#)

### **EASTERN NY FRUIT & VEGETABLE CONFERENCE - PRE-CONFERENCE PRODUCE SAFETY ALLIANCE GROWER TRAINING COURSE**

**When:** Tuesday, February 21, 2023 8 am - 5 pm

**Where:** The Desmond Hotel, Albany, NY

**Registration:** Cost: \$65/attendee. [Click here to register.](#)

*Hosted by Cornell Cooperative Extension's Eastern NY Commercial Horticulture program. 2.0 NYSDEC pesticide recertification credits in categories 1A, 10, 22, and 23.*

A grower training course developed by the Produce Safety Alliance (PSA) that meets the regulatory requirements of the Food Safety Modernization Act (FSMA) for farms subject to the Produce Safety Rule. All farms are welcome to attend to learn about recommended food safety practices for growing, handling, and storing fresh produce. Course registration fee includes a course manual, lunch, coffee break, and certificate of course completion by the Association of Food and Drug Officials (AFDO) for participants who attend all course modules. This is a PRE-CONFERENCE EVENT for the ENYCHP Fruit and Vegetable Conference held Feb. 22-23.

## **2023 NEW YORK FARM SHOW**

**When:** Thursday - Saturday, February 23-25, 2023

**Where:** New York State Fairgrounds in Syracuse NY

**Registration:** Admission is free by visiting your Northeast Equipment Dealer by Feb. 15; otherwise, it is \$5 at the door and those under 18 are free. Free parking and free shuttle buses run all day to all six farm show buildings.

The largest farm equipment show in the Northeast is back for its 38th year in Syracuse on Feb. 23-25. The New York Farm Show continues to grow, and this year it will add thirty new products and eighteen new exhibitors to maximize 300,000 square feet across six heated buildings. Over 400 exhibitors will display the latest in farm equipment, tractors, combines and farm implements; seed and crop protection products; farm supplies, dairy and beef productions, wood-lot, and related industry supplies. The event will also include a full line of educational sessions from the New York Beef Producers and New York Forest Owners Association.

For additional information, visit [www.NewYorkFarmShow.com](http://www.NewYorkFarmShow.com) and follow the New York Farm Show on Facebook.

## **NEVBGA & COOPERATIVE EXTENSION 605TH GROWERS' MEETING**

**When:** Saturday, February 25, 2023, 9:00am-3:15pm

**Where:** Wilson Farm, 10 Pleasant St., Lexington, MA 02421

**Registration:** There is a \$20 registration fee, which is waived for members of NEVBGA. Lunch buffet is an additional \$20. To register, please RSVP to 978-423-6694 or [secretary@nevbga.org](mailto:secretary@nevbga.org) by February 22.

Join NEVBGA and New England Cooperative Extensions for a day-long workshop! Topics include:

- Agriculture in Chile
- URI Variety Trial Report
- Maine's response to the discovery of PFAS in agricultural soil, water, and products
- Update on squash and strawberry disease research and changes to the NE Vegetable Management Guide
- Farm labor focus group
- Food Safety: cleaners, disinfectants, and sanitizers

[Click here for a full agenda.](#)

*2 Pesticide recertification credits has been approved for this meeting.*

## **SEMAP 16<sup>TH</sup> ANNUAL AGRICULTURE AND FOOD CONFERENCE**

**When:** Sunday, February 26, 8am-4pm

**Where:** Online

**Registration:** [Register here.](#) Tickets will be sold on a sliding scale and you should choose the level that makes sense



for you; if cost is still a barrier, scholarships will be available. Please email [shickey@semaponline.org](mailto:shickey@semaponline.org) for more information.

Farmers, foodies, and agricultural advocates alike are all welcome. Join us for a day of engaging virtual workshops on topics ranging all across the food and agricultural space. [More info here.](#) Includes a talk by UMass Vegetable Extension's Sue Scheufele!

## **2023 VIRTUAL GET READY FOR SPRING GREENHOUSE PROGRAM, PART 2**

**When:** Thursday, March 2, 2023, 8:30am – 12:00pm

**Where:** Online

**Registration:** \$25 per person. [Click here to register.](#)

Join us online on for Part 2 of our Get Ready for Spring Greenhouse Series. It is a half-day virtual education program that will equip you with knowledge and skills you can put to use in the 2023 growing season. You did need to attend Part 1 in order to attend Part 2. More info available [HERE](#).

*Topics:*

- Managing Pests and Diseases in Retail Settings
- Water Testing: How to Interpret Results and Match Fertilizer Selection with Water Quality
- How to Manage Bacterial Diseases in Greenhouse Ornamental Crops
- Gracious support from the Massachusetts Flower Growers Association has reduced participation fees for these events as a benefit to the industry.

*Two pesticide credits in categories 26, 29, 31 and 000 have been approved for each program date. Credits are valid for equivalent categories in all New England states.*

Questions? Contact Geoffrey Njue at [gnjue@umass.edu](mailto:gnjue@umass.edu) or 617-243-1932.

## **AG DAY AT THE STATE HOUSE SET FOR APRIL 12, 2023!**

Agriculture Day at the State House will take place on Wednesday, April 12, 2023 from 10AM to 2PM. MDAR is excited to have the opportunity for farmers and growers to return to Beacon Hill to meet with lawmakers to promote and discuss all the issues impacting the agricultural industry in Massachusetts. Thanks to those who have already replied expressing interest in serving on the planning committee. If you would like to be involved in the planning of Ag Day, please email Phu Mai at [Phu.Mai@mass.gov](mailto:Phu.Mai@mass.gov) with your contact information and agricultural affiliation. MDAR hopes to convene a meeting of the committee sometime this month before Thanksgiving. As one of the marquee days of the year at the State House, MDAR is looking forward to working with stakeholder groups to make Ag Day 2023 one to remember!

# THANK YOU TO OUR 2022 SPONSORS!



**Become a sponsor!**

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

*Where trade names or commercial products are used, no company or product endorsement is implied or intended. Always read the label before using any pesticide. The label is the legal document for product use. Disregard any information in this newsletter if it is in conflict with the label.*

*The University of Massachusetts Extension is an equal opportunity provider and employer, United States Department of Agriculture cooperating. Contact your local Extension office for information on disability accommodations. Contact the State Center Directors Office if you have concerns related to discrimination, 413-545-4800.*