



UMass  
Extension

# Vegetable Notes

For Vegetable Farmers in Massachusetts since 1975



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## IN THIS ISSUE:

- Crop Conditions
- “Are the Bees Still Dying?” An Update on Bee Health
- Preventing Freezing in Produce Coolers
- News
- Events
- Sponsors



*A soggy farm field in Hadley in February*

## CROP CONDITIONS

Recent rain, sleet, and snow have left many fields covered in ice this month, we saw several fields being used as impromptu skating rinks! This week’s warm weather has brought some thawing and premonitions of mud season ahead. Signs of spring are all around and growers are fine-tuning their crop plans, getting equipment ready, and cleaning out their greenhouses getting ready to start planting soon, and waiting for shipments of seeds and supplies to arrive. This year we are seeing fewer shortages but prices are high, and labor shortages continue to plague the industry, with many farms struggling to find the crew members they need. Those growing through the winter in unheated tunnels are seeing some disease develop in tender lettuces and brassica greens, like damping off and downy mildews, and some freeze damage on colder nights. Removing covers during the day is important to promote drying out of leaves and soil, and you can leave the covers off unless the temperature inside is expected to drop below 28°F. The covers can stay off of spinach entirely, since it is more freeze tolerant. Some tunnels are being turned over and early spring crops are being planted, such as carrots and radishes, and in heated greenhouses tomatoes are starting to come in.

It’s still “meeting season” and there are a few more opportunities to learn from your peers, researchers, and state agencies about crop production, new pests, grant opportunities, pollinators, and more—check the events section. We will be speaking at the [NEVBGA meeting](#) this Friday, and the [SEMAP conference](#) at the end of the month. And for those of you

looking for produce safety trainings, we have two remote programs scheduled for March. A note that the programs are open to anyone interested in learning about produce safety but, with limited space available, we will give priority to those farms that need the training to comply with FSMA and MDAR regulations or to meet Commonwealth Quality requirements. See the events section for registration details.

## “ARE THE BEES STILL DYING?” AN UPDATE ON BEE HEALTH

*As a pollinator specialist, I’m often asked “are the bees still dying?” The answer to that questions is a complicated “yes”, but the outlook is ultimately hopeful. Here is what we’ve learned about bee health over the past few decades:*

### **1. IT BEGINS: COLONY COLLAPSE DISORDER**

You may remember when “bee-pocalypse” first hit the news. It was 2006, and beekeepers reported bees abandoning hives en masse. Researchers flocked to investigate, and the syndrome was dubbed *Colony Collapse Disorder (CCD)*.

Before going any further, it is important to point out that **the name “Colony Collapse Disorder” is misleading**. It sounds like a generic term for “bee declines”, but it is not. It refers to a [specific syndrome](#) that was observed in US honey bee colonies around 2006-2009, in which worker bees abandon an otherwise healthy-seeming colony, leaving the queen and developing larvae to die. Honey bee colonies can die in many other ways, including starvation, parasites, gut pathogens,

## 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 *We are currently working remotely but checking these messages daily, so please leave us a message!* **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).

pesticide-poisoning, and queen failure. In general, these colonies die over the winter when they run out of food or are overwhelmed by pathogens; in spring the hives are filled with dead bees, frozen with their desperate tongues extended, or covered in parasite feces. CCD cases were notable because there were no dead bees in the hive; they had simply vanished.

Scientists conducted experiments and – even more importantly – began to track hive deaths for the first time using national surveys. **They never figured out what caused CCD, and beekeepers stopped seeing CCD-like symptoms after a few years.** Scientists could only add it to a [long list](#) of mysterious bee disappearances throughout history.

However, the **new surveys showed that honey bee deaths continued to remain high for reasons unrelated to CCD.** Historically, beekeepers expected to lose 10-15% of their colonies each winter. In 2010 and subsequent years, beekeepers in many states [reported](#) that they lost nearly 50% of their colonies on average. Few of those dead colonies exhibited CCD-like symptoms; most died from numerous commonplace causes like parasites or starvation. For some reason, colonies were just dying at higher rates than they had in the past. CCD turned out to be a small problem, but it had exposed a much bigger one.

## 2. A MUCH BIGGER PROBLEM

Bee health is important because more than 70% of flowering plants require animal pollination, including over [a third of cultivated food](#) crops such as cucurbits, nightshades, fruits, and nuts. In the US, pollination services are valued at over \$20 billion per year, and demand for pollinator-dependent crops is [increasing rapidly](#). The Western Honey Bee (*Apis mellifera*) is native to Europe, the Middle East and Africa, and the vast majority of honey bee colonies are managed by beekeepers. When colonies die, beekeepers can replace them by dividing their remaining hives. **For this reason, it is not meaningful to talk about honey bee population declines.**

**because the number of honey bee colonies in the world depends on economics and management choices, not biology.** Instead, a more accurate measure of honey bee health is “percent yearly loss”, or the portion of a beekeeper’s hives that die each winter. High yearly losses make beekeeping more expensive and less tenable, driving up the cost of hive rentals for farmers, which in turn could make it harder to produce nutrient-rich fruits and nuts.

**As scientists continued to study bee health, they realized that honey bees hive losses were only half of the story.** There are over 20,000 other bee species around the world, whose populations were not tracked or well-understood. In North America, there are over 4,000 native bee species (more than 400 native to New England alone!) including long-horned bees, leafcutter bees, sweat bees, and blue orchard bees (see image on right). Most



(A) Long-horned bee (*Eucera hamata*), (B) Leafcutter bee (*Megachile* sp.), (C) Sweat bee (Family: Halictidae), (D) Blue orchard bee (*Osmia lignaria*). Photos from A to D: J. Rathert, W. Shell., Missouri Dept. of Conservation, J. Rathert.

of these native bees are wild – only a few are managed commercially, like the Common Eastern Bumble Bee. They feed on nectar and pollen, but do not produce honey. Most are solitary, and nest in the ground or in pithy stems. To complete their lifecycle, they require undisturbed habitat and nearby flowering resources. It is difficult to document native bee populations, but [studies](#) have found that the number of species has declined significantly over the past century, especially since the 1990s. A [recent Massachusetts study](#) found that at least half of bumble bee species previously observed on cranberry flowers had become rare or locally extinct. (Note: since wild bees, unlike honey bees, are unmanaged, this is a case where it makes sense to discuss population *declines*.)

**Native bees are also critical for crop pollination.** Until the second half of the 20<sup>th</sup> century, farmers relied almost exclusively on resident wild bees for “free” pollination. It was only when field sizes increased and field edges (which had previously provided habitat) were converted into row crops that many farms could no longer support robust native bee populations, and farmers began to rent honey bee colonies. Today, the demand for pollination services is so high that commercial beekeepers make most of their income through pollination services, not honey.

However, new research shows that native bees continue to provide critical pollination services to crops. A recent [national study](#) found that native bees comprise a significant portion of crop flower visits and provide the majority of pollination services for certain crops, like pumpkins. Many native bee species are actually [more efficient pollinators](#) than honey bees, especially for crops that are native to the Americas like tomato, cranberry, blueberry, and pumpkin. Farms with small field sizes and unmanaged areas can often be fully pollinated by resident native bees.

### 3. WHY ARE NATIVE BEES IN DECLINE, AND HONEY BEE HIVES DYING?

**After years of research, scientists have identified a slew of interacting factors that trace back decades.** The big three are habitat loss, novel pathogens, and pesticide exposure. But other factors include climate change, invasive species, and bee management practices. Here is a summary of how these factors affect native bees and honey bees:

#### Habitat Loss

Habitat loss – that is, reduced abundance and diversity of floral resources and destruction of undisturbed nesting locations – is **consistently identified as the [most important driver](#) of native bee declines**. Reduced floral diversity results in poor nutrition for native bees and exacerbates the impacts of disease and pesticide poisoning.

This problem is nearly a century in the making. Beginning after World War II, many farmers began to use synthetic fertilizers in place of flowering cover crops like alfalfa and clover. They also began to use more effective herbicides, leading to fewer flowering weeds within and around crop fields. In the 1970s, changes to agricultural policy encouraged farmers to “get big or get out”. Farmers were incentivized to grow field crops like corn and plant “fencerow to fencerow” instead of growing diverse crops, preserving fallow fields, or leaving hedgerows and marginal areas undisturbed. The expansion of cities and suburbs also destroyed or fragmented bee habitat.

By the early 2000s, there was less nesting habitat and fewer floral resources for bees, especially in agricultural areas. One [recent study](#) used land-use data to model wild bee abundance across the US, and predicted population declines across 23% of US land area between 2008 and 2013, due to the conversion of natural habitat to row crops.

Agricultural intensification has not been as dramatic in New England, where farms have remained smaller and more diverse. But bee habitat has [still been lost](#) due to development, roadside mowing, close-cropped lawns, re-forestation and invasive species.

#### Pathogens

New pathogens are a problem for all bees, but are especially important for understanding honey bee losses. Like humans, bees can become infected with bacteria, viruses, and parasites. This is a perennial challenge (there are reports of honey bee disease from the 19<sup>th</sup> century), but in the late 1980s, a new honey bee parasite arrived in the United States that was particularly damaging and continues to devastate the beekeeping industry: the *Varroa* mite.



*A bumble bee (Bombus sp.) pollinating an eggplant flower*

**It is hard to overstate *Varroa*'s impact on honey bee health.** Mites feed on honey bees' organs, weakening their immune system and reducing their ability to detoxify pollutants (like pesticides). They also transmit over a dozen damaging viruses and will kill a colony within a year or two if left untreated. They are found on every continent except Australia, and it is assumed that every hive within their range is infected. In the 1990s, Tau-Fluvalinate was an effective pesticide for controlling *Varroa*; however, by the early aughts, mites had become resistant, and beekeepers had nowhere to turn. Today, to keep their hives alive, most beekeepers apply a range of marginally effective chemicals that also negatively affect their bees. Experts are working to breed *Varroa*-resistant bees, discover better management practices, and develop more effective acaracides, but the work is slow.

Luckily, *Varroa* do not parasitize other bee species. However, wild bees also face their own pathogens, like the gut parasites *Nosema* and *Crithidia*. While they are not as devastating as *Varroa* mites, they do weaken bees and reduce their ability to withstand other health challenges like poor nutrition.

## Pesticides

Agrochemicals – especially insecticides – are important for controlling crop pests and producing enough food for people, but also harm bees. Balancing pest-control needs with non-target impacts is a perennial challenge for farmers. However, the issue became super-charged a few decades ago, around a new class of pesticides called neonicotinoids.

Neonicotinoids were developed in the 1980s and began to be used broadly in the early 1990s. Today, they are the most widely used class of insecticide in the world, and imidacloprid is the most commonly used agrochemical after glyphosate. Neonicotinoids are systemic neurotoxins, which are taken up into plant tissue as the seed germinates and grows. They are often applied as seed treatments for crops like corn, soybean, canola and cucurbits, and are popular for many reasons: they are less toxic to vertebrates than other insecticides (so are much safer for farmers), they can be used at very low doses, and they don't have to be sprayed, so are less likely to drift onto non-target plants.

However, they are also highly [toxic to bees](#), causing direct mortality and sublethal effects. Bees encounter neonicotinoids in nectar and pollen, as well as runoff in nearby soil and water, and in the “dust” that flakes off treated seeds during planting (seed coatings have improved since the 1990s but are still not perfect). In honey bees and bumble bees, neonicotinoids have been shown to impair navigation, learning, and memory, and to curtail colony growth. It is hard to study their impact on solitary wild bees, but effects are expected to be similar or worse, given the bees' smaller body size.

One reason that neonicotinoids cause particular harm for bees is that they are used at such an astounding scale in parts of the US: in 2011, for instance, [more than 80%](#) of corn seeds planted in the United States were treated with neonicotinoids. Some of these seed treatments help to control pests like seedcorn maggot. But sometimes treated seeds are used prophylactically when there is little benefit for that particular crop or location. For instance, a [recent meta-analysis](#) found that neonicotinoid seed treatments had negligible effects on soybean yield in the Midwest.

It is also important to note that neonicotinoids are not the only pesticides that harm pollinators. For example, fipronil, an insecticide widely used by homeowners to control ants and termites, is highly toxic to bees, as are other vegetable pesticides like pyrethroids (e.g. Warrior) and carbamates (e.g. Lannate). In addition, some fungicides, such as chlorothalonil (e.g. Bravo), have recently been [correlated with](#) an increased risk of gut disease in honey bees.

## Climate change

Climate change is [expected to negatively impact](#) native bees. It could lead to phenological mismatches between bee and plant lifecycles and result in range shifts which are not consistent between pollinators and their associated plants. Further, extreme weather events could destroy bee nests or interfere with foraging.

## Other factors

There are several other factors impact bee health. For honey bees, this includes poor genetic diversity in the US, as well as migratory beekeeping practices that stress bees and circulate disease. For native bees, it includes invasive plants, which crowd out native plants and interrupt local plant-pollinator relationships, as well as honey bees themselves, which may compete with native bees for resources and spread disease.

Finally, it is important to note that these stressors compound one another. For example, bees that are parasitized with *Varroa* are more susceptible to poisoning by pesticides. Exposure to neonicotinoids leaves honey bees more susceptible to the gut pathogen *Nosema*. And bees' ability to survive infection is reduced by nutritional stress.

## 4. WHAT CAN WE DO?

Bees are declining for complex reasons, but it turns out that helping bees is relatively straightforward: it's all about improving habitat.

There are two main ways that farmers can help bees:

**(1) Increase foraging resources and nesting habitat (and/or protect habitat that already exists).** In other words, plant bee-friendly flowers and leave marginal areas undisturbed. This can be accomplished in several ways. Farmers can provide flowering resources by planting flowering cover crops like buckwheat and phacelia or intercropping with low-growing flowering plants like clover. They can add flowering resources *and* create nesting habitat by planting perennial flower strips on field margins or establishing undisturbed meadows (see Figure 2). There are some excellent resources on these topics through the [Integrated Crop Pollination Project](#), and the [Xerces Society](#). Farmers can also receive funding to establish bee habitat through the [USDA Conservation Reserve Program](#).



*Pollinator habitat on a field margin. Photo: D. Schweitzer*

**In general, New England farms are smaller and more diverse than farms in other parts of the US and Massachusetts farmers are already supporting bees.** We recently surveyed >100

MA commercial growers and found that most surveyed farms (both conventional and organic) contain some type of pollinator habitat, including flowering cover crops (80%), perennial meadows (75%), hedgerows (66%) and flowering strips (52%).

Agriculture is the most prevalent land-use in the United States and establishing pollinator habitat on farmland is one of the most effective ways to boost native bee populations. Not only does pollinator habitat benefit bees, but [studies show](#) that it improves pollination services to nearby crop areas and can replace the need to rent honey bees.

Another way to increase pollinator habitat at scale is to plant bee habitat on public land. In Massachusetts, there is currently [an effort by the Department of Transportation](#) to establish bee habitat on publicly owned land, like roadsides and around municipal buildings.

**(2) Practice bee-friendly pesticide use.** This means using integrated pest management principles whenever possible: use actual pest levels (through observation or scouting reports) to determine when and what to spray and rotate active ingredients. It also means avoiding spraying bee-attractive crops during bloom, and choosing pesticides that are less toxic to bees. You can read more about bee-friendly pesticide practices [here](#).

### **FURTHER READING:**

#### **Review articles about bee losses/declines:**

- [The Plight of the Bees](#), by Marla Spivak
- [Bee declines driven by combined stress from parasites, pesticides, and lack of flowers](#) by Dave Goulson et al.

#### **Resources for establishing pollinator habitat:**

- [The Pollinator Partnership](#)
- [The Integrated Crop Pollination Project](#)
- [The Xerces Society](#)

## **BEE HEALTH TAKE-AWAYS:**

- **The term Colony Collapse Disorder (CCD) is misleading.** It does not refer to general bee declines. It refers to a specific syndrome that affected US honey bee colonies from about 2006-2009.
- However, CCD was important because it turned researchers' attention to bee health at a moment when several decades-long trends were hurting both managed and unmanaged bees. **Today, yearly honey bee losses are still elevated, and we are only just beginning to understand the scope of native bee declines.**
- In the past, native bees provided all pollination services on farms; only after farm sizes increased in the mid-20<sup>th</sup> century were honey bees used for large-scale pollination.
- We are learning that **native bees still provide significant pollination services to crops** and their numbers can be boosted by establishing nearby habitat.
- The biggest drivers of bee stress are **habitat loss** (especially loss of food and nest sites for native bees), **pathogens** (especially *Varroa* mites for honey bees) and **pesticide exposure**, as well as **climate change**, **invasive species**, and **beekeeping practices**.
- The best way to support bees is to **increase pollinator habitat** (flowering resources and undisturbed areas) on farms, and to use **pollinator-friendly pest management practices**.
- Massachusetts farmers are already supporting bees! **More than 80% of recently surveyed MA commercial growers maintain some form of pollinator habitat on their land.**

--by Hannah Whitehead, UMass Vegetable Program

## **PREVENTING FREEZING IN PRODUCE COOLERS**

--Written by Chris Callahan, University of Vermont Extension Ag Engineering. Originally published on the UVM Ag Engineering Blog on January 25, 2022. <https://go.uvm.edu/frozencoolers>

Occasionally, during longer cold snaps, we receive a lot of questions about storage crops freezing in coolers. This post summarizes some ideas for preventing freezing.

### **Summary**

- **Seal up the cooler box** – stop drafts by sealing the [cooler walls](#) and doors.
- **Keep produce off the floor and away from the walls** – break conduction paths and promote air flow.
- **Circulate air** – add a [small fan to mix](#) the air in the cooler and level out cold and warm areas.
- **Monitor and alarm** – Add a [remote monitoring system](#) to notify you before there is a problem.
- **Add heat if you need to** – a [safe space heater](#) on a [thermostat](#) is cheap insurance.

### **Seal up the Cooler Box**

The main culprit in freezing is most likely infiltration of cold, outside air into the cooler. If you're seeing freezing in one area, there is likely an air leak somewhere nearby. Although freezing generally happens down low, growers have experienced top layers of top bins freezing while lower levels have not. Infiltration can be very localized. This can be through cracks between panels or in the [wall construction](#) of self-built coolers. Another possible source of air leakage is where refrigerant lines or condensate pan drains pass through the wall or at openings for CoolBots™. Outlets and lighting fixtures may be another source of air leakage. Doors are often a place where seals wear and need regular maintenance.

Give your cooler a once over, looking (and feeling) for drafts. An infrared thermometer is also handy in tracking down

where cold air may be getting into the cooler. The other trick that can be helpful is go in the cooler with the lights off and look for daylight. Seal any openings up with spray foam or caulk for now and come back to it with a longer-term fix in milder weather to make it cleanable and more durable.

### Keep Produce Off the Floor and Away from Walls

This is a good practice for a number of reasons including food safety, [rodent deterrence](#), avoiding condensation, etc. But, another big reason is to prevent conduction directly from cold surfaces such as the floor and walls to bins of produce. It also helps ensure there is air flow around all the bins to help equalize temperature in the room preventing cold spots. If you have bins right on the floor, consider stacking on a pallet just to provide some space underneath. Try to keep everything 4-6" away from walls and up off the floor.

### Circulate Air

We highlight the use of small fans to mix the air in warm rooms in our [post on that topic](#). The same principle applies here.

### Monitor and Alarm

It can be very helpful to have a [monitoring and alarm system](#) that's measuring temperature in your cooler and notifying you if it gets below (or above) a critical level.

### Add Some Heat

Adding heat is usually the first thing we all think of, but start with the others above since they're relatively easy and inexpensive and probably need to be addressed anyway. But, if you've done that and still need some heat to prevent freezing take a look at [our blog post on warm rooms](#), which provides some ideas for thermostat controlled heaters. The main issue with space heaters is that they aren't designed for low-temp use or freeze protection. So we need to control them with a thermostat that allows a lower temperature set point. We also have an [online heat load calculator](#) to size your heater. [Thermostats](#) with pre-wired plugs are available and make this job easier.

**Stubborn Coolers** – Still have problems? There may be more to it than the “easy” fixes above. Bank barn walls, slab insulation, and other site specific construction details can lead to issues with heat loss through the perimeter. Get in touch with us if you have a particularly problematic cooler situation and we can troubleshoot it together.



*Worn out door seals can be a place for major air leakage. Be sure to inspect and replaced door sweeps and weather striping when necessary.*



*Keeping product off the floor and away from walls reduces the chance of freezing.*



*The new CoolBot Pro Controllers can be monitored remotely and send you an alarm notification if out of range.*

## REPORT ON DEFINING “LOCAL FOOD” WRITTEN BY UMASS EXTENSION EDUCATOR LISA MCKEAG

The Veg Team’s Lisa McKeag finished a degree in Food and Agriculture Law and Policy at the Vermont Law School in 2020. This recent report features part of her master’s work on defining local food! The paper describes some of the challenges of using such a broadly defined term and includes a 50-state scan of the term’s use in state laws.

[DEFINING LOCAL FOOD: AN ANALYSIS OF STATE APPROACHES AND CHALLENGES](#)

## REMINDER: CHLORPYRIFOS AGRICULTURAL TOLERANCES EXPIRE FEBRUARY 28, 2022

On August 18, 2021, the EPA announced that it will revoke all tolerances for chlorpyrifos, which establish the amount of a pesticide that is allowed on food. This revocation will go into effect on February 28, 2022. This means that after that date, chlorpyrifos cannot be used on agricultural products; any product treated with chlorpyrifos will be considered adulterated and cannot be sold. Existing stocks of chlorpyrifos products cannot be used. This decision was made after the EPA determined that the current aggregate exposures from use of chlorpyrifos do not meet the legally required safety standard that there is a reasonable certainty that no harm will result from such exposures. Chlorpyrifos products that were previously labeled for use in vegetable crops include Bolton, Cobalt, Hatchet, Lorsban, Match-Up, Nufos, Stallion, Vulcan, Warhawk, Whirlwind, and Yuma.

## 2022 CENSUS OF AGRICULTURE IS COMING SOON!

The Ag Census is conducted by the National Agricultural Statistics Service (NASS) every 5 years. It is the only source of comprehensive agricultural data for every state and county in the nation. The data are widely used to inform decisions that benefit the agricultural community and the nation – from decisions guiding essential food delivery systems, succession planning, and new and beginning farmer programs, to decisions affecting agricultural practices, land stewardship, sustainability, and more. **The 2022 Census of Agriculture will be mailed out to all known U.S. producers next fall.** In accordance with federal law, NASS keeps all responses confidential and uses them for statistical purposes only.

If you are a producer who does not currently receive NASS surveys or censuses, visit [www.nass.usda.gov/AgCensus](http://www.nass.usda.gov/AgCensus) and click on the green “**Sign Up to Be Counted in the 2022 Census**” button at the top of the page.

**The USDA is also conducting 2 efforts to improve the census process:**

- The USDA will **test the 2022 Census of Agriculture online questionnaire in new Respondent Portal.** Starting in January, approximately 15,000 agricultural producers across the nation and the various segments of U.S. agriculture will receive an invitation to assist in the online 2022 Census of Agriculture Content Test, which will run through spring, [Click here to see the full news release from the USDA.](#)

## SURVEY: REDUCED TILLAGE EQUIPMENT

As part of the [Massachusetts Coordinated Soil Health Program](#), the American Farmland Trust has put together a very short survey to collect information on what reduced tillage equipment is in the fleets of MA producers, what equipment is working better or worse than expected, and what kinds of equipment you would like to learn more about and even try out on your farms.

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

For more information about the MA Coordinated Soil Health Program, visit <https://farmland.org/ma-soil-health-program/>, where you can also fill out a [more detailed survey on soil health practices and implementation needs.](#)

## NEW, FREE RESOURCE: THE MA FOOD PROCESSORS RESOURCE GUIDE

The MA Department of Agricultural Resources and UMass Extension Food Safety Program is pleased to present the MA Food Processors Resource Guide, a new resource for supporting new and growing value-added agricultural and entrepreneurial food businesses. The Guide includes regulatory information specific to MA but much of the information will also be relevant in other states. Chapters include Getting Started; Performing Market Research; Scaling Up;



Calculating Costs & Setting a Price; Food Safety Basics; Labeling, Regulations & Design; Business Planning, Registering a Business & Insurance; Marketing, Promotions & Social Media; Sales, Brokers, Distributors & Trade Shows; Resources; and Resources for Women, BIPOC & LGBTQ+ Entrepreneurs.

[Click here to access the free, online MA Food Processors Resource Guide.](#)

*This resource was supported by the Specialty Crop Block Grant Program at the U.S. Department of Agriculture through grant AM170100XXXXG054. Its contents are solely the responsibility of the authors and do not represent the official views of the USDA.*

## **ADDITIONAL SPOTTED LANTERNFLY POPULATION DETECTED IN WORCESTER CO., MA**

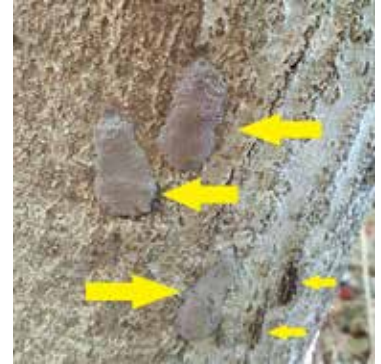
The Massachusetts Department of Agricultural Resources (MDAR) announced that a small stand of trees was found to be infested in Shrewsbury, MA (Worcester County) with the invasive spotted lanternfly (*Lycorma delicatula*; SLF) earlier in January by MDAR surveyors. This is the second detection of a population of this insect in Massachusetts, following confirmation of SLF in the city of Fitchburg, MA in 2021. For a map of these locations, visit: [https://massnrc.org/pests/linkedddocuments/SLF\\_Detections\\_Map.jpg](https://massnrc.org/pests/linkedddocuments/SLF_Detections_Map.jpg)

### **What to do Now?**

Remain vigilant and report any suspected spotted lanternfly in Massachusetts to: <https://massnrc.org/pests/slfreport.aspx>

Now is the time to search for spotted lanternfly egg masses ([see photos here](#)), which are the overwintering life stage of this insect. Egg masses can be found on almost any flat surface - not only host plants - but also outdoor furniture, fencing, stone, recreational vehicles, and a multitude of other items.

For more information, see the [UMass Extension Spotted Lanternfly Factsheet](#).



*Spotted lanternfly egg masses*

## **SNAP PROCESSING EQUIPMENT NOW AVAILABLE FOR FARMERS AND FARMERS MARKETS**

Application period for winter vendors is open until February 18.

Free mobile SNAP processing equipment from Novo Dia Group is available to direct-marketing farms and farmers markets through the Department of Transitional Assistance (DTA), in collaboration with MDAR, and with financial support from the USDA. Eligibility is limited to SNAP-authorized farms and markets that do not currently have working equipment received through previous federal grants. Equipment will not process credit/debit.

There will be two application rounds in 2022.

Winter: Limited to farms or farmers markets that sell during January, February or March. The application period is open now through February 18.

Spring/summer: Open to all eligible farms or farmers markets. If you are not open for the winter season, [sign up here for a reminder to be notified when the spring/summer application period opens](#). The application period will open April 20 and will close September 23, or earlier if funds run out.

For complete program details and a link to the application, visit [here](#).

## **STATE RESTRICTION OF PESTICIDE MASSACHUSETTS FARM ENERGY GRANTS: UPCOMING GRANTS & APPLICATION DEADLINES**

### **Rural Energy for America Program (REAP)**

The next REAP deadline for renewable energy and energy efficiency grants and loan guarantees is **March 31, 2022**.

For more information on this program and how to apply, [click here](#). There will be an informational webinar about REAP on February 16, from 10-11:30am. [Click here to register for the webinar](#).

**MDAR Climate Smart Agriculture Program (CSAP):** The next round of CSAP will open soon, sometime in spring 2022.

**Questions about either program, or need help with your application?** Contact the Megan Denardo at the MA Farm Energy Program at [megan.denardo@cetonline.org](mailto:megan.denardo@cetonline.org) or 413-727-3090.

## PRODUCTS CONTAINING NEONICOTINOIDS

The Massachusetts Pesticide Board Subcommittee (“Subcommittee”) is the entity that registers pesticide products in Massachusetts. During a recent Subcommittee meeting, the Subcommittee determined that current uses of neonicotinoid pesticides used in outdoor non-structural uses or outdoor non-agricultural uses may pose unreasonable adverse effects to the environment as well as pollinators, when considering the economic, social, and environmental costs and benefits of their use in the Commonwealth. Therefore, the Subcommittee voted to modify the registration classification of pesticide products containing neonicotinoids that have outdoor non-structural uses or outdoor non-agricultural uses on the label **from general use to state restricted use**. These uses include, but are not limited to, uses on lawn and turf, trees and shrubs, ornamentals, and homeowner vegetable and flower gardens. **The reclassification shall be effective on July 1, 2022.**

This reclassification is going to affect a large number of products and it is important that pesticide applicators begin planning for the upcoming changes. Anyone using a product that is classified as State Restricted Use must have a Commercial/Private Certification or have a Commercial Applicator (“Core”) License and be working under the Direct Supervision of someone with a Commercial/Private Certification License. The Department is providing this notice now so that companies can plan for the 2022 season.

We encourage you to visit [this Frequently Asked Questions document](#) for more information on this change, including which active ingredients are classified as neonicotinoids, what types of products will become restricted, and what to do with leftover product that has become restricted if you do not hold the proper license to apply the product.

## LOTTA AGRICULTURAL FUND: 10-YEAR, INTEREST-FREE AGRICULTURAL ENTERPRISE LOANS FOR UMASS

### AMHERST GRADUATES

The Lotta Agricultural Fund was established by Charlotte “Lotta” Crabtree, who was a wealthy actress in the United States in the 1800s. The Fund was established to make interest-free loans to the MA Agricultural College, which has since grown to become the University of Massachusetts Amherst. The fund provide interest-free loans to UMass Amherst Graduates, to support their agricultural food production enterprises. Loans can be made to any graduate of UMass Amherst, but preference is given to graduates of the Stockbridge School of Agriculture.

For more information, including information about how to apply, see <https://stockbridge.cns.umass.edu/lotta-agricultural-fund> or contact Dr. Frank Mangan at [fmangan@umass.edu](mailto:fmangan@umass.edu).

## EVENTS

### UPCOMING NEVBGA GROWER MEETINGS

The New England Vegetable & Berry Growers’ Association (NEVBGA) is the oldest vegetable growers’ association in the United States. Through educational programs, industry promotion and advocacy, and networking opportunities, and the funding of Extension research, the NEVBGA supports and promotes the vegetable and berry industry in New England. The NEVBGA and New England state Cooperative Extensions have a long history of presenting educational programs together, including the New England Fruit & Vegetable Conference.

Non-members are welcome to attend NEVBGA grower meetings and are invited to [join the Association](#) as members.

### NEVBGA & Cooperative Extension 604<sup>th</sup> Growers’ Meeting - *NEW DATE!!*

Topics: New insect pests, sweet corn nutrient management, strawberry soil-borne diseases, produce safety and risk management. Includes a talk by vegetable extension educator Lisa McKeag on the new proposed FSMA rule for agricultural water.

**When:** Friday, February 11, 2022, 9am-1pm

**Where:** Virtual (zoom)

**Registration:** View agenda and register [here](#).

## **UMASS PRODUCE SAFETY ALLIANCE REMOTE GROWER TRAININGS – 2 OPTIONS, REGISTER NOW**

*Note: These programs are grant-funded and limited to Massachusetts residents only.*

**Option 1: March 9 & 10, 2022** (Wednesday and Thursday afternoon), 12:30 to 5:30pm

[REGISTER HERE](#) (Registration Deadline: **February 21 2022**)

**Option 2: March 22 & 23, 2022** (Tuesday and Wednesday afternoon), 12:30 pm to 5:30 pm

[REGISTER HERE](#) (Registration deadline **March 7, 2022**)

- There is **NO CHARGE** for this course. The required training manual (~\$60 value) and certificate of completion (\$35 value) are included for FREE.
- **No more than two people** from the same company should register for the course. In the event that the courses fill up, **priority will be given to farms that are required to receive training** to comply with federal and state produce safety regulations.
- Because space is limited and manuals are shipped to participants ahead of time, **please be mindful that your registration indicates a commitment to attend.** Certificates of attendance will only be issued to those who are present for all modules on both days.

### **Who Should Attend**

Fruit and vegetable growers and others interested in learning about produce safety, the Food Safety Modernization Act (FSMA) Produce Safety Rule, farm food safety best practices, and co-management of natural resources and food safety. The PSA Grower Training Course is one way to satisfy 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.” This course will also cover and satisfy the training requirement of the Massachusetts Commonwealth Quality Program (CQP), a voluntary 3rd-party audit program.

### **Technology requirements**

This class will be offered online using Zoom. A link will be provided upon registration.

**Important:** You must be present for the entirety of the course if you wish to receive the PSA certificate.

Please have a laptop or desktop computer (no phones or tablets permitted) with built-in video or external webcam and microphone with sufficient internet connectivity for the duration of the course.

If you are taking the course in the same physical space as someone else, you must use headphones to minimize background noise and feedback.

Computer camera must be on the entire class time. (Some exceptions made for participants with limited bandwidth, though attendees will be asked to turn on their cameras periodically to ensure attendance.)

Breaks will be built into each day.

*This workshop is offered in collaboration with the **Massachusetts Department of Agricultural Resources**. Funding to offset the costs for this training comes from FDA Grant Agreement #IU2FFD007426-01 for the Maintenance & Expansion of the Produce Safety Program in Massachusetts..*

## UNH & UVM FARM LABOR WORKSHOP SERIES

**When:** Various dates and times, January – March 2022

**Where:** online

**Registration:** \$35/workshop. Scholarships and multi-session discounts available. Register [HERE](#).

This series of six online workshops is designed to help farmers build practical labor management knowledge and skills. The workshops are geared to produce and diversified livestock producers who are new to managing employees, and to farmers who are considering changes to how they arrange for and manage labor on their farms.

Workshop topics include:

- Planning Your Payroll & Estimating Trade-Offs with Mechanization
- Practical Communication Tools for Employee Management
- Growing Successful Work Teams
- Hiring & Retaining Employees on Your Farm
- The Art of Negotiation: Getting What You Need
- Cultivating a Safe, Healthy, and Productive Crew

Scholarships and multi-session discounts are available, reducing the workshop fee to \$20. However, these options are only available for people who request – and receive approval for – reduced fees in advance of registration and payment. To request a discount or scholarship, please fill out this [online request form](#). Please wait to register until you hear back from us via email. Decisions are generally made within 3 business days. If you are approved, you will receive a voucher code that you will use during the registration/payment process to activate a reduced registration fee for the workshops you indicated you wish to enroll in.

## **2022 MASS AGGIE WORKSHOP SERIES**

**When:** Saturdays, February 5 – March 26, 10:30am-12pm

**Where:** Zoom

**Registration:** \$35/workshop. [Click here for more information and to register.](#)

Each year, UMass Extension offers workshops for homeowners and small-scale farmers to help participants gain new skills to can use in the garden or landscape. Topics of this year’s webinars will be Insects: Pests & Beneficials, Orchard Diseases, Home Orchard Establishment, Home Orchard Pruning, Growing Brambles, and Growing Blueberries.

**Questions?** Contact Doreen York at [dyork@umext.umass.edu](mailto:dyork@umext.umass.edu) or 413-545-2254.

## **VIRTUAL FDA PUBLIC MEETINGS ON THE PROPOSED CHANGES TO AGRICULTURAL WATER REQUIREMENTS IN THE PRODUCE SAFETY RULE**

On December 2, the FDA announced the publication of new proposed requirements related to agricultural water in the FSMA Produce Safety Rule (Subpart E).

- Docket FDA-2021-N-0471
- <https://www.regulations.gov/document/FDA-2021-N-0471-0001>

The proposed revisions would significantly change the requirements related to pre-harvest water while retaining the existing standards for post-harvest water and for sprouts. The proposal would replace the microbial criteria and testing requirements for pre-harvest agricultural water with an “agricultural water assessment” of pre-harvest water systems that considers several factors in determining whether the water is likely to introduce contamination to fresh produce.

- There is a 120-day public comment period for the draft rule
- Deadline for comments to the docket is April 5, 2022
- Comments that are thoughtful and substantive, containing real-life examples and solutions will assist the FDA in creating a document that better suits the needs of fresh produce farmers across the country

- Comments can be submitted to the [docket](#), or at one of the public meetings below.

**First meeting:** Monday, February 14, 2022, 11:45am-7:45pm EST. [Click here to register for the February 14 meeting.](#)

**Second meeting:** Friday, February 25, 2022, 8:45am-4:45pm EST. [Click here to register for the February 25 meeting.](#)

\*Note the long meeting times are intended to provide persons in different regions of the country an opportunity to comment

**Questions about the meetings?** Contact Juanita Yates, [juanita.yates@fda.hhs.gov](mailto:juanita.yates@fda.hhs.gov).

## MA FARMLAND ACTION PLAN LISTENING SESSION

**When:** Tuesday, February 15, 3-5pm OR Wednesday, February 15, 5:30-7:30pm

**Where:** Zoom

**Registration:** Registration deadline February 14. [Click here to register for the Listening Sessions.](#) After you register, you will receive information to join a Zoom meeting with a unique link and enhanced security settings. Please do not share this link with others.

You are invited to attend a Listening Session to provide input for the development of the MA Farmland Action Plan. The purpose of the MA Farmland Action plan is to develop state level goals and recommendations for increasing **farmland protection, farmland access, food security, and the long-term economic and environmental viability of farms across all regions of the state.** The Massachusetts Department of Agricultural Resources (MDAR) is supporting the development of the plan, and has engaged the UMass Donahue Institute to gather input and recommendations from farmers, advocates, investors, landowners, land trusts, agricultural technical assistance providers, scientists, public officials, policy makers, and other agricultural stakeholders.

Toward that end, we hope you will attend one of two Listening Sessions to share your ideas and suggestions for strategies to be included in the Massachusetts Farmland Action Plan. Input from stakeholders like you are key to the successful development of a plan.

If you are unable to attend the sessions, you may also submit written suggestions to the contact info below.

**Questions?** Contact Sonia Bouvier, Project Manager with UMass Donahue Institute, [sbouvier@donahue.umass.edu](mailto:sbouvier@donahue.umass.edu).

## FARM SUCCESSION SCHOOL – *NEW DATES!*

**When:** Tuesdays, February 15, March 8 & March 29, 2022, 9am-4pm

**Where:** John W. Olver Franklin Transit Center, Greenfield, MA

**Registration:** \$100 per farm. [Click here to register for this series.](#)

Land for Good's Farm Succession School was scheduled to begin January 25 but has been pushed back one month and will now occur on February 15, March 8, and March 29.

MDAR is hosting Land for Good's Farm Succession School for Massachusetts farmers this winter! This is an opportunity for senior generation farmers to talk with peers, learn from advisors, and get support on the challenging process of farm succession and transfer planning.

Succession planning is a process of exploring how to transfer the farm business and assets to a future owner. Succession School provides farmers and farming partners with the structured and sustained support to make decisions, engage their families, and organize the legal and financial mechanics.

**Questions?** Contact Shemariah Blum-Evitts, [shemariah@landforgood.org](mailto:shemariah@landforgood.org) or 603-357-1600

*Funding provided by the Massachusetts Department of Agricultural Resources' Agricultural Business Training Program.*

## VT VEGETABLE & BERRY GROWERS' ASSOCIATION SPRING WEBINAR SERIES

**When:** Thursdays, February 17 and 24, 12-1pm

**Where:** Zoom

**Registration:** Free and open to all growers and people that work with growers. Register once for any and all webinars. [Click here to register for any of these webinars.](#)

Join the VT VBGA for a webinar series this February! [Click here for full webinar descriptions.](#)

**February 17:** Promoting pollinator vigor in cut flower production – *Karen Trubitt, True Love Farm and Dr. Lynn Adler, UMass*

**February 24:** Pollinator habitat plantings: what growers are doing and NRCS funding – *Dan Pratt, Astarte Farm and Tom Akin, NRCS-VT*

Additional webinars through April TBD

**Questions?** Contact Vern Grubinger, [vernon.grubinger@uvm.edu](mailto:vernon.grubinger@uvm.edu), (802) 257-7967 x 303

## MDAR GRANTS: AN INTRODUCTION TO FINANCIAL OPPORTUNITIES FOR YOUR FARM

**When:** Wednesday, February 23, 2022, 7-8pm

**Where:** Online

**Registration:** [Click here to register](#), by February 18.

Join the MDAR and the Harold Grinspoon Charitable Foundation for an informative webinar on the scope of grant programs available to farmers. The MDAR team will provide an overview of grant and training programs that are available to farms in the Commonwealth and be available to answer questions as you navigate the grant writing process.

**Questions?** Contact [Rebecca.Davidson@mass.gov](mailto:Rebecca.Davidson@mass.gov).

## UMASS PESTICIDE RECERTIFICATION TRAINING WORKSHOPS

**When:** Several dates and times, February 23 through March 11, 2022

**Where:** Zoom

**Registration:** \$40/workshop

The UMass Extension Pesticide Education Program conducts pesticide recertification training workshops in February and March. These workshops are designed to provide both licensed and certified applicators with current information regarding the safe and effective use of pesticides. Applicators can gain contact hours towards recertification in addition to a current understanding of pesticide issues and their responsibilities as pesticide applicators in the Commonwealth of Massachusetts. Most workshops are for all license categories—it is the license-holder's responsibility to select workshops that are appropriate for their license or certification.

[Click here for more information and a full list of workshops.](#)

**Questions?** Contact the UMass Pesticide Education office at (413) 545-1044.

## SPRAY SAFE, SPRAY WELL / ROCÍA CON CUIDADO, ROCÍA BIEN:

*Reducing Pesticide Use Risks for Organic and Beginning Vegetable Farmers / Reduciendo los Riesgos del Uso de Pesticidas Para los Productores de Vegetales Orgánicos*

**Para información en español, [hacer click aquí](#).**

**When:** Wednesdays, February 23, March 9, 23 & 30, 12-1:05pm

**Where:** Zoom

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

Join Cornell Cooperative Extension for this free, eight-part workshop series focused on the basics of when and how to use OMRI-listed pesticides on your vegetable farm. Participants in eastern NY will also have the opportunity to receive individual on-farm follow up support from the project team in the spring and summer of 2022.

## 2022 SEMAP AGRICULTURE & FOOD CONFERENCE

**When:** Sunday, February 27, 2022, 9am-4pm

**Where:** Online

**Registration:** \$10 for students, beginning famers, veterans, low-income, and disabled folks; \$30 general admission, \$60 super supporter to sponsor the attendance of another person. Scholarships available. [Click here to register for this conference.](#)

SEMAP's 15<sup>th</sup> Annual Agriculture & Food Conference will bring together farmers, foodies, and agricultural advocates. Join us for 12 engaging workshops and panels with more than 20 speakers – farmer and academic experts from our region! [Check the conference website for updates on workshop topics and speakers.](#)

As part of the conference, UMass extension educator Hannah Whitehead will be giving a talk about creating pollinator habitat on farms, and Sue Scheufele will present on pest management updates in brassicas.

**Questions?** Contact Karen Schwalbe, [info@semaponline.org](mailto:info@semaponline.org), 508-524-2601.

## VIRTUAL GET READY FOR SPRING GREENHOUSE PROGRAM – PART 2

**When:** Tuesday, March 1, 2022, 8:30am-12pm

**Where:** Online

**Registration:** [For more information, including registration, please click here.](#)

Join the UMass Extension Greenhouse Crops & Floriculture Program for a virtual education program that will feature tips for growing quality transplants and managing pests in spring greenhouse pests. This workshop will be geared towards the floriculture industry but will be relevant to some vegetable growers who produce transplants or greenhouse crops. Topics on the agenda include Producing High-Quality and Uniform Vegetable Transplants, Getting Tough on Tough Pests, and Management Strategies for Virus Diseases in Spring Greenhouse Crops.

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

Questions? Contact Geoffrey Njue, [gnjue@umass.edu](mailto:gnjue@umass.edu), 413-992-8005

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

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