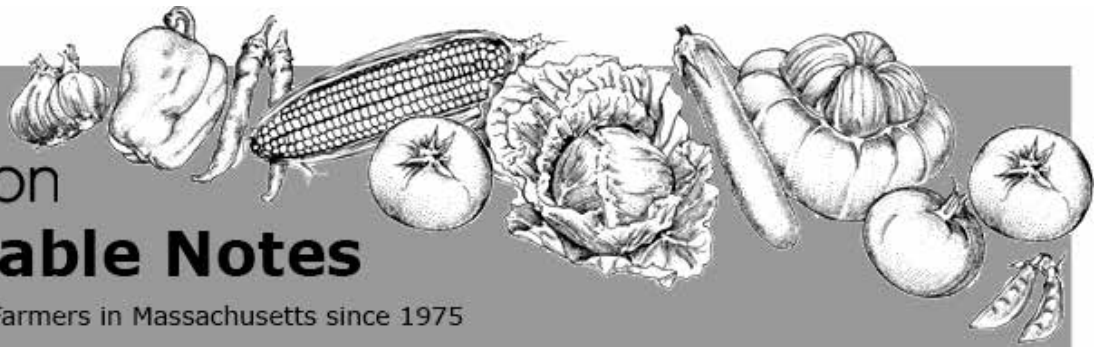




UMass  
Extension

# Vegetable Notes

For Vegetable Farmers in Massachusetts since 1975



Volume 30, Number 9

June 7, 2018

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## THANK YOU TO OUR SPONSORS

We are proud to introduce this year's Vegetable Notes sponsors! Your support, as sponsors and donors, truly helps keep us in action - conducting trials, visiting farms, and writing the articles we hope will help you farm better. This year, our readership graciously donated over \$900, and sponsors provided over \$5000! Here are our sponsors:



## CROP CONDITIONS

The first strawberries are ripe, meaning that some roadside stands and retail farm stores are finally ready to open for the season, feeling confident that fruit lovers will browse and buy some vegetables as well. Other farm retail stores have established a year-round presence, selling items they are able to produce throughout the winter in their greenhouses and under cover, along with other locally-or-not sourced goods. This is the first CSA week for many farms as well. Garlic has begun to scape in some fields, and the first summer squash and zucchini started under cover are being harvested. The rain was welcome, but the cold temperatures are not. Some tomatoes and other heat loving crops are showing purpling indicative of phosphorous deficiency and cold injury. Not to worry; they should grow out of it soon. Some early planted field tomatoes are also showing catfacing on fruit, which is a result of the cold they experienced back in early May. More catfacing is expected on fruit produced from crops flowering now. Cat-face originates in the early stages of flower bud development and is the result of abnormal development of plant tissue between the style and ovary. The syndrome is related to unfavorable growing conditions, in particular several consecutive days below 60°F when the plants are young and blooming. High levels of soil nitrogen and excessive pruning aggravate the problem.



*Now is the time to scout weekly for thrips, especially as temperatures increase. Photo: G. Higgins.*

## PEST ALERTS

### **Allium:**

[Allium Leaf Miner](#) was confirmed on overwintered onions outdoors (previously found on overwintered onions in a hoophouse) in Berkshire Co., MA. The larvae had tunneled to the bottom of the plants and were beginning to pupate. Signs of oviposition were also abundant in a garlic crop in Ulster Co., NY. Stay tuned as we monitor the fall flight, and consider row cover for leeks at that time.

[Leek Moth](#) has not been confirmed in Massachusetts but has been highly active in northern NY and VT. The second generation adults are about to emerge from their pupae on the tips of allium leaves (photo). If you see this on your crops in MA, please let us know at [umassvegetable@umass.edu](mailto:umassvegetable@umass.edu)

[Embellisia skin blotch](#) has not been confirmed in MA, but has been frequently reported on harvested garlic in NH for the past few years, and was confirmed this week on the necks of a growing garlic crop in Washington Co., RI. 100% of the field was affected. Typically, this is considered a post-harvest disease, causing only cosmetic damage (blackening color under the skins of garlic). However, there is evidence that this pathogen can also cause damage in the field, which was the case this week in RI. The symptoms in the field look like N deficiency. As the pathogen infects each leaf layer, moving inward, the leaves turn yellow and then drop off. Effect on yield and crop loss is currently unknown. Learn the symptoms, and avoid planting infected seed garlic. Oxidate or chlorine seed treatments may help prior to planting. See the article in this issue for other, more common diseases of onion and garlic

[Onion thrips](#): Nymphs and adults are present in onions and leeks in increasing numbers across MA and RI. Now is the time to scout weekly for this pest, especially as temperatures increase. Though tiny, you can see the slender, yellow nymphs moving about on the leaf when the leaves are parted. Treat when a threshold of 1-3 thrips per leaf is reached.



*Leek moth pupa (cocoon) on a leaf tip. Photo: UVM*



*Tiny, slender, yellow onion thrip nymphs. Photo: S. Scheufele.*

**Brassicas:**

[Imported cabbageworm](#) has reached threshold in fields in Hampshire and Worcester Cos., MA, and low levels are being found elsewhere. Scout 25 plants and use the following thresholds for treatment (Table 1):

Bt products XenTari (*Bt aizawai*) and Dipel (*Bt kurstaki*) work well against all caterpillars, including imported cabbageworm, will not kill your beneficial insects, and are OMRI-approved. Both must be ingested by the pest.

Apply in evening or early morning, before larvae are actively feeding. Coverage and efficacy will improve with use of an approved spreader-sticker. Use high rate at cool temperatures. For resistance management, use XenTari and Dipel in rotation with each other.

**Table 1. Treatment thresholds for brassica caterpillars.**

Crop	Stage	% Infested Plants
Cabbage & Broccoli, Cauliflower	pre-cupping (before head formation begins)	35%
Cabbage & broccoli	head formation to maturity	15%
Cauliflower	after heading	10%
Kale, collards & other greens	all stages	10-15%

**Chenopods:**

[Leaf Miner](#) populations are very high all over New England, with visible mining damage in spinach, chard, beets, and malabar spinach. If maggots are still present in the leaves, consider mowing off, harvesting, or removing the infected leaves above the crop crown, and allowing the crop to grow back. Be prepared to treat when the second generation eggs are seen towards the end of this month!



*Just hatched small larvae of the Colorado Potato Beetle.  
Photo: K. Campbell-Nelson*

**Cucurbits:**

[Striped cucumber beetle](#) is present but below the threshold of 1 per plant on recently emerged and transplanted cucurbits in Middlesex and Hampshire Cos., MA. However, at the end of last week in Hillsborough Co., NH, there were 3-5 beetles per plant. Keep scouting as temperatures rise!

**Solanaceous:**

[Colorado Potato Beetle](#): Adults, eggs, and now the smallest larvae are present in fields scouted in MA. Treat at a threshold of 0.5 adults per plant or 1 small larvae per plant before the potatoes are 1 foot tall. Target the very small larvae (photo), or ‘black head’ egg stage, when the heads of the larvae are visible just before hatching. See the article in this issue for management strategies.

**Sweet Corn:**

[European corn borer](#): Eggs have hatched, and we are nearing peak flight of the first generation in many locations around MA at 631GDD base 50F (Table 2), but we have not yet seen tasseling corn yet. Some locations have reached threshold (Table 3) for tasseling corn, but unless you scout your field and reach a 15% infestation threshold, there is no need to spray. One location in NH had high ECB numbers because the grower did not mow their corn stubble -- mowing stubble can help reduce the overwintering population of ECB. Want to learn how to scout sweet corn? Use this handy guide: <https://ag.umass.edu/vegetable/publications/guides/sweet-corn-ipm-scouting-guide-record-keeping-book>

**Table 3. Sweet Corn Trap Counts Week ending 6.6.18**

	ECB Weekly Total
<b>Western MA</b>	
Whately	5
Hadley	0
Amherst	0
<b>Central MA</b>	
Leominster	2
<b>Eastern MA</b>	
Millis	0
Swansea	3
Seekonk	0
Sharon	0
<b>NH</b>	
Hollis	32
Litchfield	6
Mason	0

**Table 2. Accumulated Growing Degree Days: 1/1/18 -6/6/18**

Location	GDD 50° F
<b>Western MA</b>	
South Deerfield	520
Deerfield	504
Amherst	497
Westfield	518
<b>Central MA</b>	
Leominster	511
Northbridge	477
<b>Eastern MA</b>	
Seekonk	444
Sharon	428
Waltham	494
Ipswich	393
<b>NH</b>	
Hollis	456
Walpole	428
<b>NY</b>	
Hudson	582
Castleton	549

# COLORADO POTATO BEETLE MANAGEMENT

Colorado potato beetle (CPB) adults are actively moving into potato fields and laying eggs now, and egg hatch is just beginning. Increasing temperatures mean faster development and feeding rates. Cold, rainy weather slows both crop and insect growth, so eggs that are laid can pile up and then all hatch at once when it warms up. Knowing what to look for and getting out into the field to scout is key in determining when to use appropriate controls. CPB is also an important pest of eggplant, so these fields should be monitored as well. Good control of CPB in June will not only protect vulnerable crops now; it will also reduce the number of beetles that will reproduce in fields and overwinter to feed on next year's crops. Both adults and larvae cause feeding damage, but larval damage is the most severe. Because the fourth and final larval stage (instar) does 85% of the feeding damage it is critical to control larvae while they are small.



**Life Cycle:** In the Northeast, CPB survives on solanaceous crops and weeds, including horsenettle, nightshade, eggplant, potato, and tomato (primarily seedlings). CPB overwinters in the adult stage, generally in soil (up to 12 inches deep) in the woods and brushy borders next to host crops, though some burrow into soil in the field. In spring the beetles search for host plants by walking from the field edges. Heavy feeding may occur on edges on non-rotated fields. If beetles do not find host plants via walking they will fly in search of food. Once host plants are found, adults feed, mate, and lay eggs. One female can lay up to 300 eggs in her lifetime. Eggs hatch in 7-10 days, depending on temperature. Feeding damage and larvae are easily seen on leaves. Larvae go through four molts (instars) before they pupate. In the first instar, the larvae are about the same size as the eggs and in the second instar they are about an eighth of an inch long. Mature, fourth instar larvae are hump-backed and plump, and reach 5/8"-long before they drop to the soil and pupate. Adults emerge from pupae after 10-14 days, leaving round exit holes at the soil surface. In southern New England there is a second generation of eggs, larvae, and adults, while in northern New England there is only one generation. Beetles fly out of fields in August, seeking overwintering sites at field edges.

**Monitoring & Thresholds:** Scout for beetles on 30 to 50 plants (or individual stalks later in the season). One recommended procedure is to walk the field in a V-shaped pattern and stop at 10 sites across the field. Randomize your selection of sites using a set number of paces, e.g. stop every 10 to 30 paces, depending on field size. At each location, select 3 to 5 plants (from when plants emerge until 12"-18" tall); thereafter select 3 to 5 stalks at each site. Alternatively, select plants or stalks individually at random across the field. Count adults, large larvae (greater than half-grown) and small larvae (less than half-grown) separately. A treatment should be considered for adults when you find 25 beetles per 50 plants or defoliation has reached the 10% level. The spray threshold for small larvae is 4 per plant; for large larvae, 1.5 per plant (or per stalk in midseason). Potatoes can tolerate 15- 20% defoliation without reduction in yield.

Scout every 3-4 days, especially if numbers are above the following thresholds: 15 adults, 75 small larvae or 30 large larvae per 50 plants/stalks. Use these scouting sheets to help keep track of beetle populations and determine when economic thresholds are reached: [Potato](#), [Eggplant](#), [Tomato](#). These can be used for a range of insects and diseases in each crop.

## **Controls & Prevention:**

**Rotation.** The single most important tactic for CPB management is to rotate potatoes, eggplants, and tomatoes to a field that is at least 200 yards from the previous year's fields. Barriers such as roads, rivers, woodlands, and fields with other crops are helpful. This single practice delays and reduces colonization by adults, and therefore number of eggs and larvae in the field later on.

**Crop health.** Starting with healthy seed and maintaining good crop nutrition help plants grow well and withstand feeding injury.

**Barriers.** Mechanical barriers such as trench traps, trap crops, and straw mulch also delay and reduce infestation.

**Trenches.** Install plastic-lined trench traps next to overwintering sites at least one week before adults emerge. Trenches should be 1' to 2' deep and 6" to 24" wide at the top. They can be U- or V-shaped with side walls sloping at angles between 65° and 90°. Beetles walking from field borders fall into the trench and cannot fly out.

**Straw mulch.** It has been well documented that when potatoes or eggplants are mulched with straw, fewer CPB adults

will settle on the plants and fewer eggs will be laid. This can be accomplished on larger plantings by planting into a rye cover crop, mowing down the rye, then pushing the rye straw over the plants after they emerge. For smaller plots, straw may be carried in.

**Perimeter trap cropping.** Potato trap crops may be planted earlier than the main crop to attract beetles before the main crop emerges, or planted between overwintering sites and this season's crop. Flame, vacuum, or spray border crop before beetles move into the main crop. Another approach is to plant three to five rows of potatoes treated with a systemic insecticide in a perimeter around the field; this treated border will kill up to 80% of the colonizing beetles. Planting main potato crops later than normal may also cause beetles to leave the field before potatoes emerge, resulting in lower beetle numbers.

**Flaming.** Flame weeders can be used to kill colonizing adult beetles when the crop is less than 5 inches tall. Move rapidly using a tractor-mounted or hand-held flamer. The goal is to scorch beetles, as injury to antennae and legs render them unable to orient and climb plants. At this early stage, healthy emerging potatoes have sufficient reserves to regrow foliage and establish well.

**Biological control.** Predators and parasites of CPB suppress populations and help prevent crop injury. Natural enemies that attack CPB eggs or larvae include twelve-spotted ladybeetle (*Coleomegilla maculata*), spined soldier bug, a carabid beetle (*Lebia grandis*), and a parasitic tachinid fly. The fungus *Beauveria bassiana* (e.g. Mycotrol) has been shown to suppress beetle populations, though it does not provide immediate control. If insecticides will be used, use selective rather than broad-spectrum products to conserve natural enemies. Be aware that ladybeetle egg masses look very similar to CPB egg masses, though lady beetle eggs are slightly smaller (~1mm) than CPB eggs (~1.7 - 1.8mm) and more yellow in color.

**Chemical Controls & Pesticides:** Scout to determine whether or not a damaging population is present. When using products that control only larvae or only small larvae, scout for eggs, note egg hatch, and apply controls before larvae reach third instar to avoid the worst feeding injury. For materials that control all stages, you may wait and scout for adults and larvae to determine the need to apply insecticides.

**Resistance management must be part of every potato grower's plan.** CPB has a remarkable capacity to develop resistance to insecticides. Based on a fifty-year track record, we can expect that any insecticide that is used repeatedly on the same population of CPB (that is, those in the same field or farm) will lose its efficacy in less than five years. Where potato production is concentrated and rotation has been limited, resistance may develop on a region-wide basis. It's up to you to manage resistance in the population of beetles on your farm. Note that in the New England Vegetable Management Guide, as well as on pesticide labels, each insecticide has a Group Number, which identifies chemistries with the same mode of action. Growers should note the resistance group number of each insecticide, rotate classes of insecticides, and avoid using the same chemistry more than once per year or even better, once every other year. Do not use the same chemical class on successive generations in the same year. Use newer chemistries first. For conventionally managed fields, there are enough different products to do a two-year rotation that will effectively control CPB while effectively delaying resistance to any one product. Keeping insecticides effective with careful rotations is a worthwhile investment. For organically managed fields, the selection of insecticides is limited to fewer active ingredients including spinosad (Entrust), azadirachtin (Azatin, Azera), pyrethrin (Pyganic, Azera), and *Beauveria bassiana* (Mycotrol O, Botanigard). There is a new strain of Bt with efficacy against CPB that is OMRI listed, called Trident. It will be very important for organic growers to start to integrate this product into rotations with Entrust to prevent development of resistance to Entrust, which is documented in some fields in Maine.

For current information on potato insect management including an up to date list of insecticide groups that have products registered for Colorado potato beetle, please visit the [New England Vegetable Management Guide](#).

**Do not try to kill every beetle in the field.** Potato crops can withstand 15% defoliation without affecting yields. Avoid spraying the beetle in late season, as food reserves in the foliage two weeks prior to senescence add little to final tuber bulking.

-- UMass Vegetable Extension

# **POSTEMERGENCE YELLOW NUTSEDGE CONTROL**

Yellow nutsedge (*Cyperus esculentus*) is a perennial sedge (distinguishable from a grass by its triangular, solid stem) that overwinters as small tubers, or ‘nutlets’ and emerges in early May. As the season progresses, plants develop networks of rhizomes and tubers up to 6” below the soil. Nutsedge reproduces primarily with tubers. The plants do produce seeds, but they have very low viability, whereas each plant can produce hundreds to thousands of tubers in one season. The plants will begin to form new tubers in July and August, so it is important to manage nutsedge before this occurs.



*Nutsedge emerging among corn this time of year.*

## **Cultural Controls**

In general, between-row cultivation will not control emerged nutsedge well, but will only move the plants down the row with the cultivator and spread it in the field. However, in fallow fields, regular tillage during the season is effective. Tuber survival rate depends on soil conditions, with tubers that are deeper in the soil surviving the longest. Use tillage practices that bring tubers to the soil surface, where they will be exposed to desiccation and temperature extremes.

Avoid spreading nutsedge to new fields by removing soil and plant material from any tillage or harvest equipment after use in an infested field. Nutsedge is fairly intolerant of shade, so growing vigorous crops and using narrow spacing in- and between-rows to shade it out wherever possible can help.

## **Herbicides**

There are several post-emergence herbicide options available to manage yellow nutsedge. Halosulfuron (e.g. Sandea or Profine) is registered on a variety of vegetable crops, including asparagus, sweet corn, tomatoes, beans, cucumbers, and some melon types. It is in the sulfonylurea class of herbicides and is effective at very low rates, so it is important that application equipment be well-calibrated. Sandea can be applied pre-emergence or post-emergence in several crops. For pumpkins, applications can be made to direct seeded crops after seeding but before ‘cracking’. Post-emergence applications should not be made until the pumpkin crop has 2-5 leaves. A non-ionic surfactant, but not a crop oil, should be added for optimal control. Although Sandea will control or suppress yellow nutsedge and a number of broadleaf weeds, post-emergent applications will not control common lambsquarters. Weeds should be in the 1-3 inch stage when treated. Weeds that are larger than this will not be well controlled. Slight stunting and yellowing of the crop has been observed within a few days of post-emergence applications. Usually the crop recovers quickly with little effect on yield. Check the label for replanting restrictions before planting other crops.

Bentazon (e.g. Basagran) offers an alternative selective post-emergence control option in sweet corn, beans, and peas. Basagran will also control many broadleaf weeds but it will not control grasses. Experience with Basagran suggests that application in high relative humidity (>80%) and high temperature (>80°F) will afford optimal control. Often, a repeat application of either Sandea or Basagran is necessary if yellow nutsedge is dense.

Dual Magnum (active ingredient metolachlor) has a section 24c registration in Massachusetts for the following crops: asparagus, beets, leafy brassica greens, broccoli, transplanted and direct-seeded cabbage, carrots, cucumber, garlic, melons, dry bulb and green onions, bell pepper, spinach, Swiss chard, pumpkins, caneberry, highbush blueberry. Regular section 3 registrations include beans, sweet corn, potato, pumpkin, and tomato. Dual provides excellent control of annual grasses, hairy galinsoga, nightshade, and yellow nutsedge. To access the Section 24c labels, go to <https://www.syngenta-us.com/labels/indemnified-label-login>. Register with the required information, then select “Massachusetts” and “Dual Magnum” to get the label. You must register to obtain the label and use this product.

In 2015 and 2016, trials were conducted at Cornell to assess the effectiveness of Chateau (flumioxazin) and Goal 2XL (oxyfluorfen) against yellow nutsedge in onion fields. Both Chateau and Goal 2XL are contact herbicides and therefore will only fully kill nutsedge plants if they are applied before nutlet/tuber formation, when the plants have just a single shoot emerging. If they are applied after tubers begin forming, the shoots will grow back. However, repeated application

of contact herbicides after tubers have begun forming (early July) will force plants to put energy into vegetative regrowth instead of into tuber formation, and will make subsequent hand weeding much easier. Additionally, this tactic will slow nutlet formation and will help lower nutsedge pressure for the future. In the 2015-2016 Cornell trials, nutsedge was best controlled (40 to 60%, compared to untreated) with the following program: 2 oz/A Chateau applied at 1-leaf stage, then 1 oz/A Chateau one week later, then 4 oz/A Goal 2XL applied weekly or biweekly until the preharvest interval (45 days) is reached. Once you begin the repeated Goal 2XL applications, monitor for contact herbicide damage on the onions. If you start seeing herbicide damage on the onions from Goal 2XL, stop the biweekly applications and switch to hand weeding. The above recommendations are for onion only. Chateau is also labeled on other vegetable and fruit crops (asparagus, garlic, tree fruit, bushberries and strawberry). Goal 2XL is labelled for use on broccoli, cauliflower, and cabbage (pre-emergence applications only); garlic (post-emergence only); and onion (post-emergent only for direct seeded crops and pre-emergent only for transplanted crops); and in non-crop use areas.

- reprinted from A. Senesac, Cornell's Long Island Research Lab, with additions from A. R. Bonanno and G. Higgins, UMass Extension

## INFLATION-ADJUSTED CUT-OFFS FOR FSMA

Produce growers may be familiar by now with the gross income levels that determine whether a farm is fully covered by or fully exempt from the FSMA Produce Safety Rule. Farms grossing less than an average of \$25,000 each year over three years are fully exempt; those grossing under \$500,000 may qualify for an exemption if a majority of their produce is sold direct to consumer. What growers may not realize is that these values are adjusted each year for inflation. That is, the number they have to compare their own income levels to will likely go up each year. The FDA has released a price deflator tool to help growers figure out if they must comply with the Produce Safety Rule. They plan to update the values at the end of March each year. You can find the tool on the FDA's website here: <https://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm554484.htm>. Below are the current updated values:

*Qualified Exemption:* A farm is eligible for a qualified exemption if the average annual monetary value of all food sold during the 3-year period preceding the applicable calendar year was less than \$500,000, adjusted for inflation, and sales to qualified end-users during such period exceeded the average annual monetary value of the food sold by such farm to all other buyers.

Baseline Value for Cut-offs (2011)	Value in 2012	Value in 2013	Value in 2014	Value in 2015	Value in 2016	Value in 2017	Average 3 Year Value for 2015 - 2017
\$500,000	\$509,199	\$517,417	\$526,645	\$532,170	\$539,121	\$548,654	\$539,982

*Not covered farm:* A farm or farm mixed-type facility with an average annual monetary value of produce sold during the previous 3-year period of less than \$25,000 (on a rolling basis).

Baseline Value for Cut-offs (2011)	Value in 2012	Value in 2013	Value in 2014	Value in 2015	Value in 2016	Value in 2017	Average 3 Year Value for 2015 - 2017
\$25,000	\$25,460	\$25,871	\$26,332	\$26,608	\$26,956	\$27,433	\$26,999

So, according to the above, a farm would be fully exempt from the requirements of the FSMA Produce Rule in 2018 if they grossed under an average of \$26,999 over the previous three years.

[Click here](#) for a template that you can use to determine if you qualify for a FSMA Produce Rule exemption.

Values that determine when a farm must comply with the law are not adjusted for inflation—these numbers remain the same. Find the compliance dates for different sized farms [here](#).

--Lisa McKeag, UMass Extension

# **EVENTS**

## **Twilight Meeting Summer Series**

This series of Twilight meetings is an opportunity to learn from fellow farmers and find out what's new in Extension research. A light meal will be provided at each program.

### **Fruit and Vegetable Twilight Meeting**

**Featuring:** Carl Hills and Kimball Fruit Farm's hydroponic tomato greenhouse.

George Hamilton, UNH Extension, will demonstrate and discuss proper boom sprayer calibration for fruit and vegetable crops.

Sonia Schloemann, UMass Extension, will provide an update on managing spotted wing drosophila.

\*\*1.5 Pesticide recertification credits have been approved for this meeting

**When:** Monday, June 25th, 2018 from 4:00 pm to 7:00 pm

**Where:** Kimball Fruit Farm, 184 Hollis St. Pepperell, MA 01463

**CLICK HERE TO REGISTER:** <https://www.surveymonkey.com/r/MDYZCFP>

### **Organic Weed Management**

**Featuring:** Langwater's Kevin O'Dwyer and their flame weeder and leaf mulching techniques. Invited presenters include: Katie Ghantous (UMass Vegetable Weed Technician) with a vinegar weed injector, on-farm trial and information on weed ecology; Sonja Birthisel (UMaine PhD candidate studying Weed Management) with results of her research using occultation and solarization, and farmer Tyson Neukirch with his experiences using silage tarps in a reduced tillage system for weed management.

**When:** Tuesday, July 24th, 2018 from 4:00 pm to 7:00 pm

**Where:** Langwater Farm, 209 Washington St., North Easton, MA 02356

**CLICK HERE TO REGISTER:** <https://www.surveymonkey.com/r/X9WLFYS>

### **UMass Extension Vegetable Program Research Tour and Round Table**

**Featuring:** Sue Scheufele's research on cucurbit downy mildew resistance, pollinator protection in butternut squash, effects of different mulches on broccoli pests, and natural predators of cabbage aphid. Also, Madelaine Bartlett's research on corn genetics and the importance of genetics in crop development and improvement, Omid Zandvakili's research on lettuce nutrition, Kelly Allen's research on Fusarium wilt of basil, presentations on pollinators & agriculture and solar & agriculture, and more! Research presentations will be followed by dinner and a round table discussion.

**When:** Tuesday, August 14th, 2018 from 4:00 PM to 7:00 PM (Rain date: August 16th)

**Where:** UMass Crop and Animal Research and Education Farm, 89-91 River Rd., South Deerfield, MA 01373

**CLICK HERE TO REGISTER:** <https://www.surveymonkey.com/r/X3JYR55>

### **Reduced Tillage and Transplanters for Vegetable Farmers**

**Featuring:** Farmer Jim Ward and his reduced till vegetable cropping systems which he has practiced for over 10 years with the help of an Unverferth Deep Zone Tiller, Davidian Farm's two-row Monosem vacuum precision planter mounted with Dawn Biologic roller crimpers (first ones in the state!), the UMass Research Farm's grain drill and roller crimper, and Brookdale Fruit Farm's new line of no-till transplanters from Checchi-Magli. There will also be demonstrations on Soil Health with Maggie Payne, Soil Scientist at NRCS.

**When:** Tuesday, August 28th, 2018 from 4:00 PM to 7:00 PM

**Where:** Ward's Berry Farm, 614 S Main St., Sharon, MA 02067

**CLICK HERE TO REGISTER:** <https://www.surveymonkey.com/r/XF8JOYD>



## **Respirator Train-the-Trainer Course for Farmers, Beekeepers, and Other Employees who Need to Use Respirators**

UMass Extension is offering a series of Respirator Train-the-Trainer workshops in 2018. Farmers, beekeepers and other who need to wear respirators, required by pesticide labels, can benefit from the workshop. Participants will learn how to fit test a respirator and select, use, clean, maintain and replace respirators. All handlers must be trained under the EPA Worker Protection Standard (WPS) Respirator Requirement if they apply any pesticide that requires a respirator. Several organic approved (OMRI) pesticides and some miticides used by beekeepers require respirators.

The respirator train-the-trainer workshops are 2 hours long and will be held in Marlboro, Taunton, Hadley, and Marlborough. The registration fee is \$30.00 per person. Participants will receive a Certificate of Attendance, a check list for respirator training, and a fit test protocol. This is a hands on workshop. Bring your respirator or use one of ours.

There is one workshop left in this series.

**When: Tuesday, June 19, 2018 from 1:15 PM to 3:45 PM**

**Where: Best Western Royal Plaza Hotel, 181 Boston Post Road West, Marlborough, MA 01752**

**REGISTER HERE: <https://www.regonline.com/registration/Checkin.aspx?EventID=2267202>**

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

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