UMass Extension
Vegetable Notes
For Vegetable Farmers in Massachusetts since 1975

Volume 29, Number 7 May 25, 2017

In this issue:

Crop Conditions

While spring is normally transplant time, some farm workers were left without work last week because growers were waiting to plant, either for the fields to dry out or for the too-hot weather to pass, trying to avoid exposing seedlings to the high heat and wind. By Friday, most were out transplanting wilty but ready plants. This week by comparison has been kinder to transplants, and farmers. Be ready though, the National Oceanic and Atmospheric Administration (NOAA) predicts a 50-60% chance of higher than normal temperatures June-August in New England and no difference from normal ranges in predicted precipitation.

Those growing now in protected environments such as high tunnels and greenhouses have a little more protection from the weather. While some growers have greenhouse cucumbers and tomatoes for sale in their retail stands and at wholesale outlets, many more are just starting to get flowers and the first fruit sets in their high tunnels. This is the stage when potassium fertility is particularly important in tomatoes according to Andy Radin, Extension Educator from URI:

A clever solution to covering early season tomatoes seen at Gove Farm in Leominster--wooden stakes with broad plastic caps to protect remay from tearing.

Everyone thinks of the importance of calcium at this stage in order to avoid blossom end rot (BER). However, BER is more an imbalance of calcium within tomato plants themselves rather than lack of availability, and more often than not, is related to soil moisture fluctuation, heat stress, and sometimes, excessive nitrogen. However, potassium deficiency, in concert with excessive heat, can be an even greater problem for quality fruit production, resulting in blotchy ripening, yellow shoulders, and grey wall. Indeterminate varieties in tunnels and greenhouses continuously carry heavy loads of fruit so potassium demand remains high from early summer onward. Now is the time to boost potassium through fertigation or top-dressing. For conventional growers, soluble fertilizers with a K to N ratio of somewhere around 2:1 can help, according to research from Michigan. More N may be required for season-long production on indeterminate vines. For organic growers, you can top-dress sulfate of potash, as long as your irrigation moisture is able to reach it so it can dissolve. For more information, read Steve Bogash's excellent article from Penn State: http://extension.psu.edu/plants/vegetable-fruit/fact-sheets/new-vegetable-grower-factsheets/refining-tomato-nutrition-better-nutrition-for-improved-packouts. It's a very good idea to sample your tomato leaves a few times during the season to make sure that plants are taking up sufficient potassium, as well as other nutrients. When sampling leaves, take whole leaves (petioles + leaflets). Location is important. Here are some tips:

- Take the most expanded leaf below the first blooming flower cluster, which often is about 5 leaves down from the terminal.

- Always sample in the hour before or after noon
- Collect a representative sample of the planting from at least 15 plants of a single variety
- If there is spray residue on the leaves, briefly rinse them and pat dry
- When sending to a lab, pack in paper bags, not plastic, so the material does not begin to rot
- *If you are trying to diagnose a nutrient deficiency on some of your plants, send samples of both "healthy looking" plants as well as afflicted ones.*

Finally, we would like to publish a correction to our Pest Alert about *Dikeya* last week. We reported that the disease had already been confirmed in New Jersey, while in fact, that was information from 2016 and so far this year *Dickeya* has been confirmed in FL, VA, and NJ in several varieties of germinating potato. The corrected publication is printed here: https://ag.umass.edu/sites/ag.umass.edu/files/newsletters/may_11_2017_vegetable_notes_1.pdf

Accumulated Growing Degree Days: 1/1/17 - 5/25/17		
Location	**GDD (base 40°F)**	**GDD (base 50°F)**
Western, MA		
Ashfield	683	223
South Deerfield	798	279
Pittsfield	694	228
Central, MA		
Bolton	831	310
Northbridge	827	301
Phillipston	701	234
Eastern, MA		
Ipswich	795	277
Waltham	886	326
Seekonk	971	344
Hollis, NH	811	303
Burlington, VT	788	296
Newport, RI	857	250
Castleton, NY	953	362

PEST ALERTS

Alliums:

Garlic bulb mites were diagnosed this week on garlic in Hampshire Co., MA. Bulb mites feed on roots at the basal plate and cause reduced stand, poor growth, yellowing leaves. The mites seemed to be seed-borne as one section of the field planted from saved seed was severely effected while an adjacent field planted with a different lot of seed appeared healthy. As growers sell seed to one another, be aware that bulb mites can be spread this way, along with other pathogens or bloat nematodes. Mites can affect a range of other crops and survive in crop residues. Plant only in fields where crop residue is thoroughly decomposed. Avoid planting Alliums directly after Brassicas, corn, grain, or grass cover crops.

Stunted and yellowed garlic plants with bulb mites. Photo by SB Scheufele.

Onion Maggot peak flight (735 GDD base 40F) has passed in most locations around the state (Table 1) so most of the egg-laying is done. However, in the Berkshires and at higher elevations scout uncovered onions for eggs and emerging larvae, especially as we have more rainy cool weather in the forecast which is conducive to this pest.

Beets, Spinach, Swiss Chard:

Leaf miner eggs have been found in uncovered spinach and Swiss chard in Hampshire, Franklin, and Norfolk Cos., MA. Scout for clusters of white eggs on the undersides of leaves. Eggs hatch within 3-6 days--treat when eggs are first observed. If tunnels and eggs are present, treat to prevent further damage. Scout again to determine if a second treatment is needed in 7 to 10 days. Use an adjuvant and ensure coverage of lower leaf surface. Some systemic insecticides are registered that may be applied to transplants or to the soil. Among organic products, spinosad has demonstrated efficacy when applied before egg hatch.

Brassicas:

Cabbage root maggot **(CRM)** egg-laying is over and larvae are active now. Transplanted crops can wilt and die as a result of larval feeding on roots and hypocotyl, and root crops can become unmarketable due to tunneling on the root surface.

Imported cabbageworm eggs were observed on uncovered broccoli in Franklin Co., MA. These are the first of the

Imported Cabbageworm, *Pieris rapae*, adult butterfly.

brassica caterpillars to arrive. Scout fields by checking leaves (top and bottom) on 25 plants across the field. In the Northeast, there is generally no need to treat young plants unless weather conditions delay plant development and at least 35% of them are infested with caterpillars (not eggs). Row covers provide good protection from egg-laying caterpillars as well as flea beetles.

Cucurbits:

Striped cucumber beetle adults were seen in very low numbers in fields in Newport Co., RI and Hampshire Co., MA, although growers with cucumbers in greenhouses and high tunnels are reporting higher pressure. Protect those seedlings as they go out!

Off-white or pale yellow imported cabbageworm eggs are laid singly, on the underside of leaves, and stick straight out off the leaf.

Tomato:

Early blight was found on the lowest leaves of 'Brandywine' tomatoes grown in pots in a greenhouse in Middlesex Co. While not often a big problem in greenhouses compared with powdery mildew and fulvia leaf mold, when this disease establishes early it can be difficult to control. Many growers remove leaves up to the first fruiting cluster to increase airflow. Keep humidity below 80% and reduce leaf wetness by venting houses. There are many fungicides labeled to control early blight in the field but in an enclosed space these options are limited (consult the Vegetable Management Guide for options and check the label for indoor use restrictions before applying—if the label does not have a restriction on indoor use than the product may be used indoors).

Powdery mildew has been confirmed in VT on crowded tomato transplants in several cases and in NY on $300 worth of grafted purchased plugs. When this disease starts early, it is expensive to control. Farmers should complain to their suppliers if the disease comes in on transplants.

Potato and Eggplant:

Colorado potato beetle adults have emerged and pressure was quite high with 5-6 adults per plant on potato in Norfolk Co. Eggs had already been laid on some plants there, and are also being reported now in Hampshire Co. Treat eggplant when you find 2 small or 1 large larvae per plant (if plant is 6 inches or smaller). For early to midseason potatoes, scout 50 stalks and treat if 25 or more adults, 200 or more small larvae, or 75 or more large larvae are found.

Sweetcorn:

European corn borer adult emergence occurs at (374 GDD), first eggs (450 GDD), and peak flight (631 GDD) base 50°F. We are about a week away from the beginning of adult flight in MA (Table 1), so farmers with emerged corn should put out traps this week to make sure they are ready to capture the first adults.

STRIPED CUCUMBER BEETLE: FOCUS ON EARLY CONTROL

Striped cucumber beetle adults spend the winter in plant debris in field edges and with the onset of warm days move rapidly into the crop. High tunnel and greenhouse cucumbers draw beetles first, followed by early field crops. Densities can be very high, especially in non-rotated fields or close to last year's cucurbit crops. Adult feeding on cotyledons and young leaves can cause stand reduction, delayed plant growth, and reduced yield. Eggs are laid in soil near the stem, and a hidden but important impact of SCB is larval root feeding, which reduces plant vigor and yield. The striped cucumber beetle also vectors *Erwinia tracheiphila,* the causal agent of bacterial wilt, and this can be more damaging than direct feeding injury. Focus on early, effective control to avoid yield impacts and to protect pollinators.

Crop rotation, transplants, and floating row cover are cultural controls that help reduce the impact of cucumber beetles. Row covers provide extra early-season heatand insect protection, but need to be removed when flowering begins.

Perimeter trap cropping has been shown to reduce or eliminate main crop sprays while providing effective control of beetles. Plant 1 or 2 rows of Blue Hubbard, buttercup squash or another *Cucurbita maxima* variety in an unbroken perimeter around the field. Always use 2 rows near woods or last year's fields, and space plants no wider than the between-row spacing that is used in the main crop between-row spacing. These perimeter crops will concentrate incoming beetles in the

border because they are generally more attractive to beetles than winter squash, summer squash and pumpkin, which are *Cucurbita moschata* or *Cucurbita pepo* types. Note that some specialty pumpkin varieties are *Cucurbita maxima* types and very attractive to beetles. Do not use a crop that is highly susceptible to bacterial wilt (e.g. Turks' Turban) in the border. Beetles should be killed in the border, either by applying foliar insecticide when beetles first arrive or using a systemic insecticide at planting. Scout both borders and main crop to assess beetle numbers. Repeat perimeter-sprays if needed to prevent influx into the main crop, and spray the main field if thresholds are exceeded. Attractive crop types that are planted in rows within the main field also work as trap crops that draw beetles as they move around within the field. These trap crops can be selectively sprayed.

Tender young seedlings can get pummeled by cuke beetles early on so have a plan in place when you go to transplant!

Thresholds and foliar controls. Cucurbit plants at the cotyledon and 1-2 leaf stage are more susceptible to infection with bacterial wilt than older plants. Thus, it is especially important to keep beetle numbers low before the 5-leaf stage. Scout frequently (at least twice per week up to emergence, and for two weeks after) and treat after beetles colonize the field. Scout at least 25 plants to monitor the number of beetles and damage. Use this UMass Cucurbit Scouting form to help keep track of what you find. The economic threshold depends on the crop. To prevent bacterial wilt in highly susceptible crops such as cucumber, muskmelons, summer squash, and zucchini, we recommend that beetles should not be allowed to exceed one beetle for every 2 plants. Less wilt-susceptible crops (butternut, watermelon, most pumpkins) will tolerate 1 or two beetles per plant without yield losses. Spray within 24 hours after the threshold is reached. Proper timing is key.

Conventional foliar insecticides. There are a number of broad spectrum conventional insecticides which can be used for foliar control, including carbamates, pyrethroids, and neonicotinoids. All are highly toxic to bees and should only be used before bloom. Avoid using neonicotinoid sprays (Actara (thiamethoxam) or Assail 30SG (acetameprid)) if systemics in the same class were used (see below) See the New England Vegetable Management Guide for more details.

Systemic insecticides. Two neonicotinoid products, imidacloprid (multiple trade names) and thiamethoxam (Platinum) are registered for use in cucurbits as an in-furrow, banded, drench, or drip irrigation application to the seed/seedling root zone during or after planting/transplanting operations. Note specific application methods and rates on label. Commercially-applied seed treatments (eg thiamethoxam, Farmore) are also available for early season control.

Organic insecticides. Kaolin clay (Surround WP), pyrethrin (Pyganic Crop Spray 5.0 EC), and Azera (mixture of pyrethrin and azadiractin) are labeled for SCB in cucurbits and can be tank mixed with an additive effect. Surround should be applied before beetles arrive because it acts as a repellent and protectant and is not a contact poison. With direct-seeded crops, apply as soon as seedlings emerge if beetles are active. Transplants can be sprayed before setting out in the field. As with other insecticides, it must be re-applied after heavy rain and on new growth. Pyganic provides a short term knock-down with no residual effect. Spinosad (Entrust) is labeled for the cucurbit crop group, though not for SCB.

Reducing risk to pollinators: The New England Vegetable Management Guide describes many steps that growers can take to protect honeybees and native pollinators when using insecticides. The issue of neonicotinoids, in particular, has received a great deal of attention in recent years. This is a group of insecticides that have a chemical structure very similar to nicotine. They have been widely used in agriculture because they are effective against a wide range of insects, have lower mammalian toxicity compared to older classes of insecticides, and because they can be absorbed by roots and moved through the entire plant. This trait allows for applications to be made to soil or on seeds, with less exposure to humans and to natural enemies of insect pests. Neonicotinoids are highly toxic to bees, and label requirements prohibit use on blooming crops or where there are blooming weeds or borders. Additional concern about impact on bees arises because research has shown that detectable, low concentrations of neonicontinoids can move into pollen or nectar. These are present at sublethal concentrations, but may affect the foraging behavior of bees or suppress their immune system. The long-term or colony effects are difficult to assess in the field, because bees from each colony travel long distances and forage in many different habitats and types of plants. In cucurbits, both native bees (e.g. squash bees and bumblebees)

and honeybees visit flowers to gather both pollen and nectar, and are essential to crop pollination. Research in cucurbits has shown that sublethal concentrations may be found in pollen or nectar. Higher levels were found after foliar applied treatments and chemigated insecticides were applied through drip irrigation during flowering. Lower levels were detected in treatment regimes that involved a single application at planting via seed treatment, drench applied to transplants trays, or transplant water treatment. Thus, growers should avoid high rates and multiple applications, especially through trickle irrigation as the crop approaches flowering.

Beekeepers in Europe and North America have faced some difficult problems in the last 10 years, including a parasite of bees called the Varroa mite and Colony Collapse Disorder—a disorder in which bees seem to mysteriously disappear over a short period of time. Extensive research on Colony Collapse Disorder suggests that the most important causes of this syndrome are a combination of several bee diseases with other stresses. At this time, insecticide use is not considered to be a direct cause of Colony Collapse Disorder.

-R Hazzard. Sources include Protecting Pollinators in the Yard and Garden, David Smitley, Professor of Entomology, Michigan State University, April 3, 2014 and G. Dively & A. Kamel, Insecticide Residues in Pollen and Nectar of a Cucurbit Crop and Their Potential Exposure to Pollinators, J. or Agr. And food Chemistry. 2012.

Reviewed for 2017 by L. McKeag

LEAFMINERS ON SPINACH, CHARD, AND BEET

Spinach and beet leafminers are early-season pests that cause damage to early greens. They attack crops and weeds in the plant family *Chenopodiaceae*, which includes chard, beets, and spinach as well as lamb's quarters. The two fly species are very similar, however, spinach leafminer may also cause damage in *Solanaceous* crops such as peppers.

Crop damage is caused by the fly larva that burrows and feeds between the upper and lower epidermis of the leaf. Early damage is a slender, winding 'mine' or tunnel, but as the larva feeds and grows these expand and become blotches on the leaves. The fly overwinters as a pupa in the soil and emerges in late-April and May. The adult fly—a small, gray fly 5-7 mm long—lays eggs on the undersides of host leaves. The small (<1mm), oblong, white eggs, are laid in neat clusters on the underside of the leaves. They are easy to spot if you look under the leaves. If you find tunnels, pulling the epidermis off will reveal one or several pale, white maggots. When fully grown, maggots usually drop into the soil to pupate, though they may also pupate right inside the leaf. The entire life cycle is 30-40 days and there are three to four generations per season. Typically mid- to late-May, late-June and mid-August are peak activity periods. After August, pupae enter overwintering phase and won't emerge until next spring.

If the plants are infested early and populations are high, the losses from this pest may be great. This may be especially true when eggs on transplants in the greenhouse go unnoticed until planting in the field, resulting in infestations in row-covered crops.

Because leafminer feeds mostly on one crop family and also on many weeds including chickweed, lamb's quarters and nightshades, weed control and crop rotation are the first line of defense. Row covers can also be used to exclude flies if placed over the crop before flies are active or immediately after planting, though be sure not to cover crops in fields where susceptible crops were grown previously and where adult flies may be emerging, as they will get trapped under the row cover.

In uncovered crops, treat when eggs or first tiny tunnels are noticed, before the larvae burrow into the leaf where they are protected from insecticides. There are both conventional and organic products available and in both cases an adjuvant is recommended to improve efficacy. See New England Vegetable Management Guide for more details on products (www.nevegetable.org). Many products are labeled for leafy greens including spinach and Swiss chard but not for beets so, as always, check the labels. Some systemics are registered that may be applied to transplants or to the soil including diamides (e.g. Coragen, Verimark) and neonicotinoids (e.g. Venom, Platinum), but be sure to observe the longer days to harvest

restrictions. Most of the products labeled are for foliar applications. Among the organic products available, spinosad has demonstrated efficacy when applied before egg hatch. Spinosad also has some translaminar activity, particularly when combined with a penetrating adjuvant, and may be effective against larvae in leaf mines.

-Updated for 2017 by UMass Vegetable Program, from an article by Eric Sideman, Maine Organic Farmers and Gardeners Association

GARLIC UPDATE

Now is the time when seed-borne insect and disease issues may become apparent in garlic crops. There are several issues that can cause poor stands, stunted plants or yellowed foliage that you might be seeing now or in the next few weeks. These include diseases such as basal rot (*Fusarium*), white rot (*Sclerotinia*), and occasionally *Botrytis*, stem and bloat nematode (*Ditylenchus dipsaci*), and even seed-borne insects like bulb mites (*Aceria tulipae* and *Rhyzoglypous* spp.). At this stage there is not much to do about these issues except rogue out affect plants and don't save seeds from affected fields. That said there is still lots to do to make sure you have the best possible garlic crop.

Poor stands of garlic and premature yellowing may be caused by a plethora of seed-borne diseases and insects.

The focus now is on making sure that the garlic plant that you have already grown is able to put all of its available energy into a strong, healthy bulb. Controlling weeds, maintaining adequate field moisture, and scaping will all help to maximize yield. Continued field culling will maximize quality, an especially important factor in seed garlic production.

Avoid Over-Fertilizing Garlic: Garlic will not respond with improved yield to applications of nitrogen after the summer solstice. These late applications of nitrogen could delay the normal maturity of garlic and may even aggravate some diseases.

Weed control: Continue to control weeds in the garlic planting for at least the next few weeks. Weeds will compete for moisture and will make it more difficult to harvest garlic. Most growers will want to complete at least one more cultivation pass on bare ground, and may need to hand-weed mulched beds.

Maintain Field Moisture: Garlic needs adequate moisture as it forms the bulb to maximize size. If you can, supply one inch of water per week to the garlic if we are not receiving rain. Plasticulture growers and those with heavy straw mulch should keep checking moisture levels under the mulch, though they may need to water less than bare ground growers. Keep watering until a couple weeks before harvest, as needed.

Scaping: Removing the scape may provide up to a 30% yield boost, depending on soil conditions and weed competition. If you can sell the scape to recoup the cost of labor used to remove it, even better! If you can't sell them, snap them and leave them in the field to speed up the process.

Field Culling: Continue to walk the garlic field and pull plants which are unusually wilted on warm, dry days; plants that are distorted or curled; and plants that are an off color (yellow or bright green, usually) and discard them. All of these plants will either have a physical defect such as feeding injury or will have a disease such as Fusarium. This is a particularly important step if you plan to save your garlic for seed or to sell it as seed. Even sickly garlic will often still make a small bulb. Once it is cured, a small bulb with disease issues can look remarkably like a healthy small bulb, though the disease inoculum is still present. Field culling is your best quality control option.

-Crystal Stewart, Cornell University, Eastern New York Horticultural Program

CALIBRATING YOUR SPRAYER

First, check your sprayer coverage and operation. Select the spray tip or boom setup that provides the desired coverage. Add water, and spray the ground or dry pavement as if you were spraying your field to check the spray pattern for uniformity and to make sure none of the nozzles are clogged. Check fittings and hoses for leaks. You can also check the spray pattern over the crop to see if you are getting good coverage by attaching water-sensitive cards (available from suppliers of spray equipment and pesticides) to a piece of foliage and inspecting your spray coverage. Adjust nozzle spacing and/or height until you achieve the desired pattern. For insecticides and fungicides, your goal is to use sufficient water to cover the foliage with small droplets, but not so much that the spray runs off the leaf. Be certain you're getting uniform coverage before you proceed! The following are instructions for calibrating your backpack sprayer, please note that the same priniciples and forumals apply when calibarting tractor mounted sprayer.

Calculate what portion of an acre is being sprayed. Determine sq ft of area to be sprayed (multiply canopy width x row length x number of rows). Calculate how much of an acre this is (this may be a small fraction of an acre):

Example:

4ft canopy width x 250 ft bed length x 5 rows = 5,000 sq.ft.

5.000 sq. ft / 43,560 sq. ft per acre =

Acres to be sprayed = 0.115 acres

Calculate how much pesticide to use. Multiply the rate per acre for the crop and pest (from the label) times the proportion of an acre to be sprayed.

Example:

Pyganic 5.0EC at 10 fl. oz. per acre x 0.115 acres

Amount of Pyganic needed = 1.15 fl. oz.

Measure water needed per sq ft of crop. Add a known amount of water (e.g. 1 or 2 gallons) to the tank. Spray the water as if you were actually spraying your field and watch that your crop gets adequate coverage until water drips off the leaves, but not to drench the soil. When making a soil drench application, target the base of the plant and check if enough water is applied to percolate 2 inches deep. Maintain constant pressure, constant speed, and consistent nozzle height and boom setup or wand motion to achieve the coverage you need. The amount of water needed will change depending on the crop and size of crop canopy. When the water is gone, stop and mark the spot. Measure the area you sprayed and calculate the square feet (length x width). Calculate how many gallons needed per sq ft.:

Example:

2 gallons used / 1000 sq. ft. sprayed

Gallon per sq. ft. = 0.002 gallons

Determine total water needed:

0.002 gallons x 5,000 sq. ft (from step 1 above)

Gallons of water needed = 10 gallons**

**Most backpack sprayers only hold 3 gallons so you will need to divide the application up and in this example fill the sprayer up to 2.5 gallons and repeat 4 times. Be sure to also divide the amount of pesticide by 4 and add only that much (1.15 fl oz / 4 = 0.29 fl oz) to each backpack load.

Mix the required amount of pesticide in the required amount of water. It is best to add half the water, add the pesticide/s, agitate, then add the remaining water. Spray, using the walking speed, pressure, nozzle and boom setup or wand motion that you used for calibrating. When making tank mixes, add materials in the following order, agitating the tank between

each addition: • Water Conditioners/Acidifiers • Wettable/Dispersible Powders • WDG's (Dry Dispersible granules) • Oil dispersions • Flowables (Suspension conc.) • EC's (Emulsifiable concentrates) • Emulsions (Micro and Suspension Emulsions) • Water Soluble concentrates (Soluble powers and liquids) • Adjuvants.

Here are some helpful videos on choosing and upgrading backpack sprayers, choosing nozzles, and more from Rutgers University: "Field Demonstrations: Backpack Sprayers" Video Series: http://snyderfarm.rutgers.edu/Backpack-Sprayers-Video2.html by J. Grande and J. Rabin, Rutgers University, NJ.

Events

Water Management Twilight Meeting

When: Wednesday, June 28, 2017 from 4pm-6pm with dinner to follow!!

Where: Tangerini's Spring Street Farm, 139 Spring St, Millis, MA 02054

FSMA and drought got you down? Come to this Twilight Meeting at Tangerini Farm in Millis, MA. Tour the newly installed irrigation system for orchard and vegetable crops built with funding support from NRCS with the designer, Trevor Hardy of Brookdale Farm, Irrigation and Row Crop Supply. Find out water sampling protocols and lab requirements for FSMA from the UMass Food Safety Specialist Lisa McKeag and about grant opportunities for irrigation and food safety improvements. Other industry representatives will be available for consultation and **dinner will be provided** following the tour.

We will cover: irrigation water sources, sampling for FSMA requirements, ins-and-outs of drip irrigation, overhead irrigation in corn, strawberry and direct seeded crops, irrigation under FSMA, and orchard irrigation.

Small Vegetable Farm Equipment Field Day

When: Friday, June 2, 2017, 2 PM – 6:00 PM (Pizza at 6:00 PM)

Where: Oxen Hill Farm Field, Corner of Quarry and Phelps Rd., W. Suffield, CT

Oxen Hill Farm, owned and managed by Jonathan Griffin and family, is a 150-acre certified organic farm that has a nice variety of cultivators and other equipment that they will demo. They just built a brand new barn and cooler system. They are also distributors for the Italian small farm equipment made by Checchi & Magli including: single-row potato planters and harvesters, transplanters and plastic mulch layers; double-row potato hillers and veg crop transplanters. The Quarry Road field has a large variety of crops grown on plastic, bare-ground and under plastic (1,400-foot-long caterpillar tunnels) and uses landscape cloth between plastic beds on tomatoes for weed control.

Trevor Hardy, from Brookdale Fruit Farm, will give a brief presentation on "Setting Up Your First Irrigation System." Equipment Dealers from around the region will display and demo a variety of large and small machines and hand tools.

Sponsored by: USDA's Beginning Farmers Program, Oxen Hill Farm, UConn Extension and the equipment dealers listed above.

UConn is an Equal Opportunity program provider and employer. Please contact us two weeks in advance if special accommodations are required.

THANK YOU TO OUR SPONSORS

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