UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 22, Number 11 July 14, 2011

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CROP CONDITIONS

Warm and relatively dry conditions persist through much of the state. Many of the summer crops are in full stride; cucumber, summer squash, and zucchini are plentiful. Late summer crops are still running a little behind from the poor growing conditions early in the season – at this time last year the tomato harvest was underway.

Many pest populations dip at this time of year, with corn borer, Colorado potato beetle, flea beetle, and a few other pests between generations. They are likely to resurge toward the end of July, maintaining a solid scouting program is the key to keeping them under control before populations build up again.

Despite the hot and fairly dry conditions we are still at some risk for late blight. It is important that crops be monitored closely and that samples of suspect plants be submitted to the UMass disease diagnostics lab for confirmation. We are waiving the diagnostic fee for suspect late blight samples.

Powdery mildew is starting in vine crops, and Cucurbit downy mildew is another disease to watch for. We have had weather conditions that were favorable for transport and infection from infected fields, but no confirmed reports of this disease close by. Squash vine borers have been caught in record numbers in traps in NH (we don't currently have a trapping program for SVB in Mass). These insects cause damage that can sometimes be mistaken for Phytophthora crown rot.

It's still worth controlling thrips in onions, as damaged incurred while the bulbs are sizing up can reduce post harvest quality and shelf life. Organic growers now have another tool for control of these pests – onions have been added to the label for Entrust.

Last but not least - mark your calendars for the upcoming Vegetable Growers Field day at the UMass Crops, Research, and Education Center on August 3. Details below in 'Upcoming Meetings'.

Cumulative GDD starting Jan 1, 2001. Base 40 and 50 ºF
Base temp 40 ºF is for maggot flies; base temp 50 ºF is for most other insects.
Cumulative GDD are higher when base temp is 40 ºF.

Date	Location	GDD since Jan 1	GDD since Jan 1	Rainfall 7 days	7-day SV	SV -Season total
		Base 40 ºF	Base 50 ºF	(inches)		
14-Jul	Pittsfield	1890.7	998.2	0.28	7	72
14-Jul	Ashfield	1919.0	992.8	0.40	5	93.0
14-Jul	Belchertown	2188.4	1229.3	0.96	4	67
14-Jul	Tyngsboro	2062.0	1157.0	0.54	4.0	62.0
14-Jul	Bolton	1953.0	1103.0	0.37	3.0	75.0
14-Jul	Stow	2051.0	1190.5	0.44	4.0	62.0
14-Jul	New Bedford	2341.9	1287.9	3.1	4.0	62.0

Weather data from NEWA, other New England locations are available
http://newa.cornell.edu/index.php?page=degree-days
SV= Severity Value, based on BLITECAST
SV Seasonal Total ASSUMES POTATO EMERGENCE MAY 20
(earlier emergence results in higher seasonal SV)

	Total severity values during last 7 days					
	<3	3	4	5	6	>6
Total rain/irrigation for past 10 days	Spray Interval for late blight control (in number of days)					
>1.2 inches	10-14	10	7	5	5	5

Bacterial Leaf Spot Management for Pepper

Bacterial leaf spot (BLS) was observed in a Connecticut Valley pepper field this week, with infections found on nearly 100% of the plants and has been seen repeatedly in the Diagnostic Lab. BLS is one of the most common diseases of pepper, one that can be very destructive once it takes hold. It is caused by the bacterium *Xanthomonas campestris pv. vesicatoria*, and there are numerous races of the pathogen. Tomato is also affected by this disease, but strains differ in their pathogenicity on tomato vs. pepper. Many cultivars of pepper have been bred for resistance to several races which are usually listed in the seed catalogue. Growing resistant varieties has made a big difference in reducing losses from BLS, especially in bell peppers. Successful deployment of resistant varieties requires knowledge of which bacterial strains are present in a given region. For some specialty peppers there are no resistant varieties available.

Sources of infection are infected seed, infected residue from a previous crop, and movement from other infected crops or weeds. If a seed lot of one cultivar is infected, these plants can serve as a source of infection for the remaining cultivars, in the greenhouse or in the field. The most effective disease control is prevention. Crop rotation (at least two years away from tomato, eggplant or potato), use of disease-free seed, hot water treatment of seed, and greenhouse sanitation are important steps in prevention. Maintaining optimum fertility is also important; low nitrogen is associated with greater losses when BLS is present. However, excessive N can cause tip dieback especially when combined with copper applications and cloudy weather.

Regular scouting for symptoms is one of the most important management practices for bacterial diseases. Even when you are growing resistant pepper varieties, leaves still need to be examined because of the potential for development of a new race of the pathogen that is able to overcome resistance. Look for this disease early in the season, as symptoms may show up in the greenhouse or in a few plants soon after transplanting. Bacteria can be moved among transplants in the greenhouse.

Symptoms include brown to black irregularly shaped spots on the leaves; spots typically have a yellow border. Margins turn brown, curled or scorched. Infected leaves become yellow and drop from the plant. Fruit develops raised white or black scab-like spots. Yield is reduced by defoliation and the resulting sunscald, loss of leaf area for photosynthesis, and subsequent loss of vigor. Disease development is favored by high temperatures especially nighttime temperatures > 75 F as well as by high moisture (rain, fog, high humidity). Cooler nights, below 60 F, suppress the disease. Infection is spread from plant to plant in water – rain, irrigation – moved by wind, high pressure airblast sprayers. It can also be carried on workers' hands and on equipment.

Detecting symptoms very early is critical because bacterial diseases are extremely difficult to manage with chemicals, especially if the environment remains conducive and/or the disease is well established before treatment begins. Preventive applications of copper are recommended before or immediately after a rainstorm, especially when heavy rain and wind is predicted, as these provide favorable conditions for movement of bacteria and can create wounds that provide an entrance place for bacteria. Spray susceptible varieties on a 7 to 10 day schedule if conditions remain favorable. Additional products to consider using with copper include Tanos which is labeled for suppression of bacterial diseases and streptomycin (Agri-mycin) which can be used in greenhouses only.

- R. Hazzard, adapted from an article by Meg Mcgrath, Long Island Horticultural Research Center, Cornell University, and Northeast Pepper IPM Manual by J. Boucher and R. Ashley.

Peppers: Watch for ECB, Aphids and Pepper Maggot

European Corn Borer.

Moths lay flat, white egg masses on the underside of leaves. Eggs hatch in 4-9 days, depending on temperature. ECB caterpillars are whitish or gray with a pattern of dark spots and a black or dark brown head. This dark head capsule distinguishes them from pepper maggots, which are completely white. Young larvae usually enter the fruit by tunneling under the cap. They leave a pile of light brown frass on the surface. Often this is the only indication that a pepper is infested until two or three weeks after the borer enters, when bacterial soft rot causes the fruit to decay. Because ECB caterpillars don't spend much time feeding in foliage, there is a fairly short window for gaining control with insecticide applications. Biological control is also an option – see below.

The severity of ECB in peppers varies in MA and around New England. Some farms – typically in areas where farming is less dense and ECB populations have not built up – do not see much damage from this pest. In the Connecticut Valley and in Southeastern MA, an unsprayed pepper field is likely to have anywhere from 10 to 100% of the fruit infested. In some cases, it seems that sweet corn – which ECB prefer over peppers – helps to draw ECB away; in other cases, presence of sweet corn near peppers provides no benefit at all. Use flight counts and historical experience to help you decide which applies to you. Getting good ECB control is especially critical when you want to sell ripe, colored peppers.

ECB monitoring. Flight is detected by placing two white nylon mesh Heliothis Scentry™ traps in weedy areas near pepper fields. These are the same trap that are placed on the edges of sweet corn fields. Traps should be placed 50-100 feet apart with the base at the top of the weed canopy. Bait one trap with a lure for the Iowa strain (ZI) and the other with a lure for the New York strain (EII), as both of these strains occur throughout New England. Check traps once or twice a week from the third week of July.

ECB threshold. Insecticide applications should begin one week after trap counts reach 7 per week (or one per night). This week delay provides an ample time margin for mating, egg-laying and egg hatch to occur before the larvae can enter the fruit. During the period when ECB moths are active, a regular schedule of insecticide applications should be maintained. This flight period usually lasts through August. At the end of the flight, when trap captures drop below 20 per week, insecticides should no longer be needed.

Insecticides. The intervals recommended for insecticide applications depend on the active ingredient used. Acephate products (Orthene 97, 7dh) can be used at 10-day intervals; insect growth regulator methoxyfenozide (Intrepid, 1 dh) at 7 to 10 day intervals; synthetic pyrethroids (products range from 1 to 7 dh); spinosad (1dh) at 7-day intervals; and Bacillus thuringiensis products twice weekly. Days to harvest restrictions for these insecticides vary from 0 to 7 days, and often dictate the choice of material. Intrepid is a selective insecticide that conserves natural enemies while controlling ECB and is easier on parasitoids than any other products with the exception of Bt. Feeding stops within hours, but it takes several days for the larvae to die. If you are concerned about pepper maggot, use of an Acephate product for the first ECB spray will also control the end of pepper maggot flight. For more details on registered products check the 2010-2011 New England Vegetable Management Guide.

Using Trichogramma wasps for biological control of ECB in pepper. Sweet corn is not the only crop where ECB can be controlled with the parastic wasp, *Trichogramma ostriniae*. Most of what you have read about using T. o. in corn applies to peppers, with some important differences. Peppers are susceptible to the second generation of ECB, because that's when there's fruit on the plants. ECB will invade fruits that are > ½ inch across. Trichogramma attacks only the egg stage, so timing is critical. We recommend that you begin releases the week that flight begins and continue weekly releases for a total of 4 weeks. Release 90,000 to 120,000 wasps per acre and spread the cards out throughout your pepper block. Higher rates are needed in peppers compared to sweet corn because the tolerance for damage is virtually zero and ECB larvae attack the fruit directly. Four releases are needed because the egg laying period for the second generation is longer than for the first generation of ECB. Fortunately peppers are also a higher value crop and worth the extra cost. After four releases, Trichogramma will have reproduced in the field and biocontrol should continue.

Wasps can be ordered from IPM Laboratories, www.ipmlabs.com or Ph 315.497.2063 and should be ordered ASAP. Wasps can also be used in combination with insecticide; if so, choose a selective material (see above) that will not kill wasps.

Pepper Maggot Fly

Pepper maggot fly (*Zonosemata electa*) is closely related to the apple maggot fly and has one generation per year. Adults emerge in mid to late July and are active for several weeks. Because flies lay eggs directly into pepper fruit, the damage often goes unseen until it is too late. In New England, pepper maggot has typically been a southern New England pest – Connecticut, southeastern MA, and scattered locations farther northward. It is often a farm-by-farm or field-by-field phenomenon without any clear reason for high or low populations that occur in a particular place. The best way to detect activity is to look for stings on the fruit, and these are easiest to spot on cherry peppers.

Pepper maggot flies are smaller than a house fly, bright yellow with three yellow stripes on the thorax, green eyes, and clear wings with a distinct banding pattern. On a daily basis, flies enter the field and return to the surrounding forest – passing across the border areas. Females insert their eggs directly into the pepper fruit and leave a small dimple – an oviposition sting or scar.

The legless white maggots feed and tunnel inside the fruit, especially in the placenta. Maggots reach about ½ inch in length over a period of about two weeks, and have no distinct head capsule. When they are ready to pupate, they exit at the blossom end, leaving tiny round exit holes. These holes allow for the entry of pathogens into the fruit. Sometimes the oval brown pupae can be found inside the fruit. Often damage is detected only because of premature ripening or decay of the fruit.

Pepper maggot monitoring. Maggots prefer to lay eggs in the small round fruit of cherry peppers. When these are planted in the border rows they work very well as indicator plants. The egg-laying stings appear as depressions or scars and are easy to find on these small, round fruit. By timing insecticide applications with the first occurrence of the stings on the indicator plants' fruit, damage to the main crop can be avoided with a minimum of spraying. If cherry peppers are not part of your crop mix, look for stings on bell peppers.

It's too late for this year, but if this pest is a concern for your farm, consider using perimeter trap cropping which is very effective. Plant one row of cherry peppers around the perimeter of the crop- hot cherry peppers can be used to create a perimeter trap crop system to protect against pepper maggots. Two or three rows of hot cherry peppers can be planted around the perimeter of the pepper crop, encircling it like castle walls. These peppers are more attractive to the maggot flies than the sweet bells, so the flies will build up in the perimeter, allowing for a perimeter spray that will reduce pest populations and protect the main crop. Perimeter trap crop systems can be as effective as whole field sprays while drastically reducing pesticide costs.

Pepper maggot threshold. If stings are observed on fruit, make two insecticide applications, 10-14 days apart, with a material labeled for pepper maggot. Pepper maggot fly activity can be very localized, and varies by farm, by region, and by year. Many farms never have a problem with this pest. Some may have it and not realize it, because it is possible to confuse maggot damage with damage caused by European corn borer. Check nearby fruit carefully for proper identification if fly has been captured. If a given farm has a history of pepper maggot activity, and pepper maggot, then it is recommended that an insecticide be applied on that farm. Farms that have never had a problem with this pest generally do not need to be concerned, except that the range of this pest seems to be expanding.

Aphids

Aphids fly into pepper fields in June and July. The most common species is green peach aphid (*Aphis gossypii*), which is light green, yellow green, or pink, with no distinctive markings. Aphids can easily be seen with the naked eye, but a 10X hand lens allows you to observe them more clearly. Wingless females use their piercing-sucking mouthparts to feed on the underside of leaves. Females produce smaller, light-green nymphs, which feed in clusters nearby.

Most of the time, beneficial insects such as ladybeetles and lacewings keep aphid numbers under control in peppers. By avoiding unnecessary insecticide applications, these natural enemies can be conserved. Use of broad-spectrum insecticides, particularly synthetic pyrethroids, to control other pests may cause aphid outbreaks. High numbers cause a buildup of sticky honeydew secretions on leaves and fruit.

Green peach aphids can vector viruses such as cucumber mosaic virus (CMV). Insecticides are not effective in controlling these viruses because the transmission occurs rapidly at low population numbers.

Aphid monitoring: From mid June to September, examine the underside of four leaves per plant on 25 plants chosen at random. Count aphids found. Calculate the average aphids per leaf (divide total by 100).

Aphid threshold: 10 per leaf. If five per leaf are found, check again within a week to determine if numbers are rising or falling.

-R. Hazzard and A. Cavanagh, University of Massachusetts; J. Boucher, University of Connecticut Extension

CALCIUM DEFICIENCIES: INTERNAL TIPBURN OF CABBAGE AND LETTUCE

Tipburn and internal browning are physiological disorders of similar origin that affect many cabbage family plants and both head and leaf lettuce. It seems that environmental and nutrient conditions work together to cause the problem. This disorder also affects Brussels sprouts, Chinese cabbage and cauliflower. It may not appear everywhere due to varying weather conditions, but is currently something to watch for due to high temperatures across the state and uneven rainfall in many places.

Tipburn has been generally recognized as a Calcium (Ca) disorder, though it usually results from environmental conditions preventing the plant from taking up adequate Ca and not from a Ca deficiency in the soil. Calcium shortage usually shows up on young, growing tissues. In cabbage, this is the internal leaves of the head and may not be noticed until harvest. In lettuce, a Ca deficiency would show up in the inner young leaves of the head which are more visible during head formation so it is usually noticed before harvest. Cavity spot on the roots of carrots and parsnips is also due to Ca deficiency, as roots are the young growing tissue in these plants.

Symptoms. The inner leaves of both cabbage family and lettuce plants are affected, but there are no external symptoms visible in cabbage and Brussels sprouts. Margins of youger (inner) leaves turn brown, beginning at the hydathodes, and later desiccate to become thin and papery starting at the margin and expanding inward over large portions of the leaf. The affected tissue may turn dark brown to black, occasionally being invaded by secondary bacteria that cause a watery soft rot. In cauliflower, internal leaves turn brown and fold over the developing curds. When secondary microorganisms attack these leaves, they become mushy, smear over the curd and make it unmarketable.

Causal agent. Tipburn and internal browning are caused by inadequate transport of calcium to rapidly growing tissues. Low levels of calcium at the leaf margin result in tissue collapse. The disorder can be caused by a lack of Ca in the soil, but usually results from the plant's inability to move sufficient Ca to the young, actively growing leaves at a critical point in their development. On a daily basis, Ca moves with the transpiration stream to the margins of leafy parts of the plant that are actively transpiring on sunny days. At night, especially when dew forms, transpiration is reduced and water movement generated by the roots is direct to the inner part of the head. However, on warm, dry nights the outer leaves continue to transpire and Ca is diverted away from the head. Once Ca is fixed by the older leaves, it cannot be translocated to the interior of the head.

Environmental conditions that favor rapid plant growth favor tipburn. Abundant soil moisture promotes rapid growth, while excess moisture reduces soil oxygen levels, which in turn reduces calcium uptake and movement. Drought or root pruning also stress the root system and can impair the plant's ability to take up Ca and translocate it to the young leaves at the center of the head. A warm dry spell after a period of abundant moisture may aggravate the disorder. Excess nitrogen results in large outer leaves that accumulate calcium at the expense of young expanding leaves within heads, and also encourages rapid growth. Wide spacing also encourages large outer leaves and rapid growth. Cruciferous crops grown on sandy soil are usually more prone to tipburn compared to plants grown on heavier textured soils.

High ammonium levels in the soil compete against calcium for uptake by the plant. Using urea as a nitrogen source can have a considerable impact because urea turns into ammonium, thus all of the nitrogen is in the ammonium form for a period of time before being converted into nitrate N. Urea is the cheapest form of N fertilizer, but may be more expensive in the long run if there is much crop loss. Use of ammonium nitrate (or calcium ammonium nitrate) fertilizer can also aggravate Ca problems. However, only half of the fertilizer N in ammonium nitrate is in the ammonium form and half is in the nitrate form. This reduces the competition with calcium for uptake. Calcium nitrate is more expensive, but the N is all in the nitrate form. Note that when applying Calcium Nitrate through a drip system it is important to use greenhouse grade material rather than field grade to avoid clogging the system.

If you have any kind of stress (drought or heat stress), this will aggravate Ca problems because it makes it more difficult for the plant to take up Ca.

Management

Cultural Practices. Factors that promote overly rapid plant growth should be avoided, because this puts a high demand for Ca on the tissues. Maintenance of optimum but not excessive fertility (including N) is important. Maintaining a phosphorous to potassium ratio of 1:1 should help to minimize the incidence of tipburn, because excess phosphorus can reduce calcium transport. Some of our soils have excessively high phosphorus relative to potassium. Irrigation may be necessary to maintain steady and optimum levels of soil moisture. Addition of calcium to the soil is helpful if it is not in the high or optimum range: calcium should be 60 to 80 percent of the base saturation reported on the soil test. Foliar applications do not seem to alleviate the problem. Close plant spacing and prompt harvesting of crops when mature are beneficial practices. Internal symptoms grow worse as heads become larger and more mature.

Resistant cultivars. Cultivars that grow less vigorously are less prone to this disorder. Resistant cultivars are available for some crops, check your seed suppliers for their recommendations. Growers are reporting that the cabbage cultivars Green Cup and Bronco had worse symptoms than other cultivars when the problem occurred in 2004 and 2005.

It always impresses me that the disorders that are caused by lack of calcium in critical tissues – such as blossom end rot in tomato and tipburn of lettuce and internal tipburn of brassicas—are not always due to a lack of calcium in the soil, but are often caused by other factors that influence the availability and movement of Ca into the tissues.

--Compiled by R. Hazzard. Sources: Howard, R.J., J. A. Garland, and W. L. Seaman. Diseases and Pests of Vegetable Crops in Canada, Canadian Phytopathological Society and the Entomological Society of Canada; Nonpathogenic Disorders of Cabbage, Robert Becker, Cornell Cooperative Extension Fact Sheet; A Sherf and A. Macnab, Vegetable Diseases and their Control; John Howell, Nutrient Management of Vegetable Crops (in press).

VIRUS & APHIDS IN VINE CROPS

Life Cycle. Cucurbits are susceptible to five major virus diseases: Cucumber mosaic virus (CMV); watermelon mosaic virus (WMV); papaya ringspot virus (PRSV); zucchini yellow mosaic virus (ZYMV); and squash mosaic virus (SqMV). ZYMV and SqMV seldom occur in the Northeast. The most susceptible cucurbits are summer squash (yellow, zucchini, and scallop types), pumpkin, and winter squash (acorn, delicata, and spaghetti types). Winter squashes such as butternut, Blue Hubbard, buttercup, and kabocha are not severely affected by viruses, though their foliage may show symptoms. Cucumber is resistant to CMV and not seriously affected by the other viruses. Severity of infection is determined by the timing of infection; the earlier infection occurs, the greater the impact on plant growth, fruit symptoms, and fruit set. Delaying the onset of infection by several weeks can have a dramatic effect on the amount of damage. Virus diseases are not usually seed-borne and migrant aphids (winged forms) are therefore responsible for the introduction of all but SqMV which is vectored by cucumber beetles. All of these viruses are transmitted in a non-persistent manner; there is just enough virus on the stylet to infect one or two plants. Aphids can infect a plant quickly; insecticides DO NOT act quickly enough to prevent infection or control the spread of non-persistent viruses. Once a virus becomes visible in your crop there is very little that can be done.

Aphids pick up viruses by merely probing (tasting) an infected leaf. This happens rapidly—within seconds or minutes. A dormant period is not required and the aphid can immediately transmit the virus by probing another plant. Aphids remain infective for a short time, usually just a few hours. Winged aphids stop on many types of plants and probe to determine if the plant is the "right one" for them—if it is their host plant. If it does not "taste right", they will fly away. During the few seconds in which it tastes the plant, any viruses that it is carrying can be acquired. No insecticide works fast enough to prevent subsequent transmission. Systemic materials are generally the most effective insecticides available for aphid control, but they still do not help to deter the spread of viruses in our region. Systemic insecticides are taken into the plant and become present in the plant juices. Aphids feed by sucking juices from the plant, and when they do so they also ingest some of the insecticide. However, when probing a leaf an aphid is not feeding and does not ingest plant juices or insecticide. In fact, the presence of an insecticide may actually stimulate probing and cause aphids to move from plant to plant in an effort to find a suitable feeding site. This can increase the spread of viruses in cucurbit crops.

Symptoms & Signs. Curcurbit viruses can cause a wide variety of symptoms, including color breaking or mottling of fruit, mosaic or mottled patterns on leaves, and darkening, distortion, and/or blistering of leaf tissue.

Cultural practices

- Where possible, do not grow ornamental plants and vegetable transplants in the same greenhouse.
- Plant resistant cultivars. Currently, virus resistance exists only in summer squash and zucchini varieties, but resistance can slow the spread of virus diseases in squash and to nearby pumpkin fields.
- Cover the crop with floating row covers in the spring to prevent the early influx of virus carrying aphids. Be careful with this tactic, as aphid populations can develop quickly under row cover if there are aphids present when the crop is covered. Make sure plants are not already infested before you apply row cover.
- Reflective mulches can repel aphids; though expensive, they may be useful if virus is a chronic problem.

- Eliminate weed host reservoirs such as shepherds purse, field bindweed, dandelion, purple dead nettle, and Canadian goldenrod.
- Prunus species (peaches, cherries, etc.) are attractive to green peach aphids. Removal of wild prunus such as wild cherry trees from around fields can make the area less attractive to green peach aphids. The green peach aphid is not the only aphid that transmits viruses, but it is important because it is a universal vector.

Corn Report

Sweet corn harvesting has continued this week. Most growers are picking their earliest plantings or are within a week of doing so. Corn earworm has made an appearance. We are seeing a lot of fresh silk that will be vulnerable to CEW infestation. Large earworm caterpillars were found feeding in the top 1-2 inches of harvested ears. Check tips for feeding damage or caterpillars if possible. Damage that we have seen was very obvious.

We are still in between European cornborer flights. Traps counts have remained low throughout the season despite the fact that we have seen feeding damage and ECB caterpillars in the field. Keep scouting tasseling corn on a weekly schedule. The second flight of ECB should be starting soon which means eggs and caterpillars will be here soon as well.

Corn Earworm Threshold		
Moths/Night	Moths/Week	Spray Interval
0-0.2	0-1.4	no spray
0.3-0.5	1.5-3.5	every 6 days
0.6-1	3.6-7	every 5 days

Location	Z1	EII	Total ECB	CEW
CT Valley				
Sunderland	0	0	0	1
Hadley (1)	0	0	0	0
Feeding Hills	0	0	0	0
Hatfield	0	0	0	0
Central & Eastern MA				
Lancaster	2	0	2	0
Northbridge	0	0	0	0
Spencer	0	0	0	1
Dracut	0	0	0	1
Concord	0	0	0	0
Tyngsborough	2	1	3	0
NH				
Litchfield, NH	1	0	1	-
Hollis, NH	0	0	0	-

Upcoming Meetings

Fruit Growers Summer Meeting

Monday July 18, 9:00 - 2:00pm

Parlee Farm, Tyngsborough MA

For more information contact Fruit Growers Association, Wes Autio 413-545-2963 autio@pssci.umass.edu.

Workshops for Beginning and Established Farmers presented UMass Vegetable Program Extension Educators

Insecticide Application and Pesticide Safety - Ruth Hazzard, UMass Extension

Wednesday July 20 10:00am-12:00pm

Nuestras Raices Farm, 24 Jones Ferry Rd, Holyoke, MA

Vegetable Production Educator Participants will learn how to identify damaging pests, and the basics and safety of choosing an insecticide for application.

To register call Amy at 413-535-1789

UMass Crops Research & Education Center Field Days

August 2nd & 3rd

2pm-6pm dinner & open house to follow

UMass Crops Research and Education Farm

89 – 91 River Road South Deerfield, MA

Tuesday August 2: Renewable Energy, Biochar, & Pasture Systems

Topics include:

Pasture and grazing management: species composition, corn sylage hybrids evaluation, use of photovoltaics on existing pasture; Energy crops – switchgrass, grain corn, sunflower, & canola; Alternative field crops including Kenaf; Deep zone tillage; Ammonia Volatility, Gas Emisions

Wednesday August 3: Innovations in Vegetable Crops

Topics include:

Crops & systems for winter harvest and sales; Deep zone tillage for vegetable crops; Alternative materials for managing cabbage maggot; Heating your greenhouse with grain corn; World Crops – maxixe, taioba, chipilin, and roasting corn; Alternative vegetable crops including fava bean & edamame; Weather monitoring & pest forecasting services; Student Farming Enterprise

Hosted by UMass Center for Agriculture, UMass Extension Vegetable and Crops, Dairy, Livestock Programs, and the College of Natural Sciences.

Come and discover innovative ways to diversify your farm and farming practices.

Dinner will be served at 6pm. Informational & vendor booths will be open before & after dinner for more discussion. This event is free and open to the public. For more information contact the UMass Extension Vegetable Program

Web: www.umass.vegetable.org Email: umassvegetable@umext.umass.edu Phone: 413-545-3696

Northeast Organic Farming Association 2011 Summer Conference

August 12-14, 2011

UMass Amherst

Keynote Speakers: Eric Toensmeier, Perennial Edibles Expert, and Dr. Ignacio Chapela of UC Berkeley, GMO Activist.

Over 200 Workshops on Organic Gardening, Farming, Food Politics, Permaculture, Homesteading, Landscaping, Draft-Animal Power, Alternative Energy, Livestock, Cooking, and more! Hundreds of Vendors and Exhibitors. Live Entertainment. Children's and Teen Conference. Country Fair and Farmer's Market. Silent Auction. This year NOFA is proud to partner with the Draft-Animal Power Network. Spend the weekend or come for the day. Activities for all ages.

To register: www.nofasummerconference.org

Email: info@nofasummerconference.org

Call: 978-355-2853

Vegetable Notes. Ruth Hazzard, editor and Amanda Brown and Andrew Cavanagh, assistant editors. Vegetable Notes is published weekly from May to September and at intervals during the off-season, and includes contributions from the faculty and staff of the UMass Extension Vegetable Program, other universities and USDA agencies, growers, and private IPM consultants. Authors of articles are noted; author and photographer is R. Hazzard if none is cited.