UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

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IN THIS ISSUE:

CROP CONDITIONS

The rain early in the week was welcomed by many growers across the state. The storm brought higher levels of migratory moths - watch for corn earworm, cabbage looper, and fall armyworm. Early successions are all in, late season crops and cover crops are being planted in some fields. Harvest of most summer crops is in full swing. Powdery mildew is widespread in cucurbits but downy mildew has still not been confirmed closer than NY and NJ. Weather conditions have put us at some moderate risk over the past few weeks so keep an eye on your vine crops. More late blight occurrences have been confirmed in northern New England, see the update below for details and recommendations – the cooler weather and long leaf wetness periods favor the spread of this disease.

LATE BLIGHT, OTHER BLIGHTS, AND LEAF WETNESS

Weather data from around the state confirm what every grower has certainly noticed: nighttime dew periods have been long and extremely wet over the past week. With humidity very high, dewfall comes early and dew dries off late in the morning. Afternoon or nighttime rainstorms and fog in low-lying areas add to longer periods when leaves are wet. The wet leaf (or fruit) surface is a key factor in for germination and establishment of many types of fungal spores including Septoria leaf spot and Alternaria early blight of tomato (see photo) as well as Botrytis and purple blotch of onion.

New reports of late blight this week included one for tomato in a garden in Warren, Maine and on potato in four additional towns in Aroostook county, Maine and in two additional parishes in New Brunswick. Farmers in central New England fortunately do not have known late blight in close vicinity, but conditions have been highly favorable.

Weekly SV's are over 7 at all locations, and over 10 at most. Rainfall was variable depending on local storms, but was over two inches at many locations including Connecticut Valley, Merrimack Valley, and coastal Southeastern MA. These conditions warrant a regular preventative spray schedule (see table).

Weekly Rainfall & Blitecast Severity Values Auugst 10

Date	Location	Rainfall 7 days	7-day SV	SV -Season total
		(inches)		
10-Aug	Pittsfield	0.7	14	79
10-Aug	Ashfield	0.7	13	98
10-Aug	Belchertown	2.2	7	89
10-Aug	Dracut	2.3	9	60
10-Aug	Tyngsboro	2.3	13	70
10-Aug	Bolton	3.3	10	78
10-Aug	E Bridgewater	1.4	15	93
10-Aug	New Bedford	2.0	12	63

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

DISEASES OF ONION AND GARLIC

Onions and garlic are subject to numerous leaf and bulb diseases, occurring both in the field and in storage, and caused by both fungi and bacteria. Below are descriptions of several fungal diseases. Look for more on bacterial and storage diseases in next week's issue. Purple blotch has been confirmed in at least one field of onions in MA. With growers increasing their fall & winter storage crops, onion productions is increasing in Massachusetts.

Botrytis Leaf Blight caused by *Botrytis squamosa* overwinters in onion cull piles, on onion leaf debris, or as sclerotia (survival structures) in the soil. The pathogen sporulates and conidia are spread by wind; if there is sufficient leaf wetness and moderate temperatures (72-75˚ F) infection occurs. Infection frequency increases with the increasing leaf wetness duration. Older or senescent leaves are more susceptible to blighting. Severely affected fields will appear blighted with most leaves dead and desiccated. Losses in yield occur because of smaller bulb size resulting from premature leaf senescence.

Purple Blotch caused by *Alternaria porri* has been reported on onion, garlic, and leek and probably occurs on other Allium species. The pathogen overwinters on infected bulbs and debris in the field, and can be seedborne in onion. Symptoms first appear on leaves as small water-soaked lesions with white centers. Zones may appear as the spot enlarges and the lesion turns brown to purplish. Red or purple margins often encircle the purplish centers and are surrounded by yellowish tissue. In moist weather, the spot's surface usually becomes covered with a brownish black, powdery fungus growth. Leaves with large spots turn yellow and are blown over by the wind.

Purple Blotch on Onion. Concentric rings are typical on many Alternaria diseases.

Susceptibility of onion leaves to infection is influenced by thrips feeding injury or by sand or dust during windstorms. Older leaves are more susceptible, and plants approaching maturity are more susceptible than young plants. Spores require rain or persistent dew to cause infection. Optimum temperatures are 77 to 81°F. Almost no infection occurs below 55°F. Bulbs may be attacked at harvest through the neck or through wounds. Decay shows first as a watery rot around the neck and is particularly noticeable because of the yellowish to wine-red discoloration in the neck region. As the fungus moves through onion scales, the tissue turns yellow then a wine-red and dries to a papery texture.

White Rot, caused by *Sclerotium cepivorum*, is one of the most widespread and destructive fungal diseases of Allium species. This disease occurs wherever are onions are grown, especially when a significant part of crop growth occurs during cool temperatures favored by the pathogen. Fungal activity is favored by cool soils and is restricted above 75°F. S. cepivorum produces hardy sclerotia which persist in the soil for years. Disease is spread by movement of infested soil and infected sets or transplants. When Allium crops are planted in infested fields, sclerotial numbers increase rapidly and it becomes very difficult to grow Allium spp. successfully. Seedling death is not common, but if it occurs, it is very rapid. Pathogen activity increases with root development and foliage symptoms develop after the pathogen grows into the stem plate or bulb. Leaves yellow and die prematurely, plants become stunted, and rapid death of all foliage follows. When there is high infestation, plants may die suddenly in large areas. A fluffy mycelium on the stem plate and bulb is seen and small sclerotia (0.02 inch, or about the size of a poppy seed) form in and on the surface of affected bulb parts, often around the neck. White rot can continue to decay infected bulbs in storage if humidity is not kept low.

Fusarium basal rot caused by *Fusarium oxysporum f. sp. cepae* attacks Allium species including onion, garlic, shallot, and chives. The fungus is commonly found in the soil and persists there for long periods. The pathogen is disseminated widely by infected onion sets and infected garlic cloves. Plants can be infected at any stage of growth; disease incidence increases with injury of roots, basal plate, or bulb by the onion maggot and other insects. Infected bulbs break down in storage. The first symptoms are yellowing, curving, and necrosis of leaves beginning at leaf tips and progressively developing downward. Infected plants may wilt and affected bulbs may appear discolored or red to purple discoloration on stems and bulbs may be seen. Affected bulbs appear brown and watery when cut open. The disease progresses from the stem plate up to storage leaves and the roots will eventually rot. Bulbs may exhibit no disease at harvest, but subsequently decay in storage. A basal rot of garlic caused by *Fusarium culmorum* also occurs. Symptoms include preemergence decay of cloves and seedlings as well decay of storage leaves and stem plate during the growing season, and postharvest decay of stored bulbs. The most important control measure is the use of resistant cultivars. In a Malheur County, OR test, these

cultivars had less basal rot: 'Golden Cascade', 'Cima', 'Oro Grande', 'Valient', and 'Cashe'. Other onion cultivars described as tolerant are 'Bronze Reserve', 'North Star', 'Sassy Brassy', and 'Sentinel'.

Disease Management

- Practice long rotations with unrelated crops; plant into disease-free soil.
- Plant high quality onion seed and transplants free of contamination.
- Use resistant varieties where available (look for resistance to Fusarium diseases and Purple Blotch).
- Avoid onion cull piles near production fields. Incorporate onion debris after harvest.
- Clear curing, topping and packing areas of debris and clean well.
- Reduce the duration of leaf wetness periods with wider plant spacing, orienting rows with prevailing winds, and controlling weeds.
- Protect plants from insect, fertilizer, or other injury.
- Follow fertility recommendations carefully and avoid excess (greater than 200 pounds per acre) or late (after July 15) applications of nitrogen. Split nitrogen applications are recommended
- Avoid the movement of soil contaminated with sclerotia of White Rot into new fields by cleaning equipment.
- Do not irrigate within 10 to 14 days of lifting. Avoid harvest after heavy rains.
- Avoid mechanical injury and bruising of bulbs during production and harvest.
- Properly cure bulbs. Cure in a well ventilated area at 70-80˚F. Practices that hasten curing include undercutting bulbs to sever all roots, avoiding nitrogen fertilization later than two months after seeding, and proper plant spacing. Under wet conditions when bulbs cannot be cured adequately, artificial drying with forced hot air followed by normal storage should be considered.
- After storage, manage air supply to prevent the condensation of water on bulbs.
- Store bulbs with good ventilation at 32-34˚F with 70-75% relative humidity.
- There are no effective chemical controls for the soil-borne diseases Fusarium Basal Rot and White Rot.
- Purple Blotch and Botrytis leaf Blight may be controlled with regular applications of recommended fungicides. Fungicides containing chlorothalonil, mancozeb, pyrimethanil, propiconazole, iprodione, and strobilurins (azoxystrobin, pyraclostrobin) are registered for use on onion and garlic. See http://www.nevegetable.org/ for more details.

- M. Bess Dicklow, R. Hazzard, A. Cavanagh

SPIDER MITES IN EGGPLANT, BEANS AND TOMATOES

The two-spotted spider mite is the most common mite species that attacks vegetable and fruit crops in New England. Spider mites can occur in tomato, eggplant, potato, vine crops such as melons, cucumbers, and other crops. Two-spotted spider mites (TSSM) are one of the most important pests of eggplant. They have up to 20 generations per year and are favored by excess nitrogen and dry and dusty conditions. Outbreaks are often caused by the use of broad-spectrum insecticides which interfere with the numerous natural enemies that help to manage mite populations. As with most pests, catching the problem early will mean easier control.

Spider mites and webbing on tomato

Monitoring. Scout eggplants, beans or tomatoes in the field. Checking for mites must be done by examining foliage. Adult mites are not found on sticky cards. Scout plants by turning over leaves and looking for the presence of spider mites and symptoms or webbing. A hand lens is useful but injury, webbing, and the tiny adults can be seen with the naked eye. Adult females are approximately 1/50-inch long, slightly orange or pale green in color with two dark spots on

their body. All mobile stages are able to pierce plant tissue with their mouth-parts and remove plant fluids. Saliva injected during feeding may also cause discoloration, necrosis or abnormalities on leaves, stems and fruits.

Feeding injury often gives the top leaf surfaces a mottled or speckled, dull appearance. Leaves then turn yellow and drop. Large populations produce visible webbing that can completely cover the leaves. Eggs are laid singly, up to 100 per female, during her 3- to 4-week life span. Eggs hatch into larvae in as few as 3 days. Following a brief larval stage, several nymphal stages occur before adults appear. Egg to adult cycle can be completed in 7-14 days depending on temperature.

Spider mites are favored by hot dry weather, which also aggravates injury by stressing the plant. Damage is often underestimated since the wounds and the pest are not initially apparent to our eyes without close inspection. Leaves become blotched with pale yellow, reddish brown spots ranging from small to large areas on both upper and lower leaf surfaces. Other symptoms caused by either severe or constant attack include distorted leaves, overall loss of plant vigor (in spite of adequate moisture and nutrition), whitening or spotting of leaves, yellowing of the plant or some of the leaves, and in some cases loss of foliage and death. Symptoms of other pests are generally distinguishable from mites: flea beetles on eggplant are small round holes across the leaf which reduce plant vigor; Verticilium wilt causes yellowing, leaf scorch, leaf drop and stunting.

Management. Overhead irrigation or prolonged periods of rain can help reduce populations. Do not over-fertilize. Avoid weedy fields and do not plant eggplant adjacent to legume forage crops. Avoid early season, broad-spectrum insecticide applications for other pests.

Chemical Control. Use selective products whenever possible. Selective products which have worked well in the field include Agrimek (abamectin, derived from a soil bacterium) and Acramite (bifenazate,a long residual nerve poison), and the relatively new products, spirotetramat (Movento) and spiromesifen (Oberon 2SC) (both Group 23) which mainly affect immature stages. OMRI-listed products include insecticidal soap (M-Pede), neem oil (Trilogy), and soybean oil (Golden Pest Spray Oil). See the New England Vegetable Management Guide for additional products (http://www.nevegetable.org/index.php/crops/eggplant?start=3). With most miticides (not bifenazate), use 2 applications, approximately 5 to 7 days apart, to help control immature mites that were in the egg stage and protected during the first application. Alternate between products after 2 applications to help prevent or delay resistance.

Biological control. Preventative releases of the predatory mite, Phytoseiulus persimilis, may suppress TSSM populations in vegetable fields, as they do in strawberry fields. *Amblyseius fallicis* is a predatory mite that is widely used in greenhouses. See New England Vegetable Guide on biological control in greenhouse bedding plants, Table 25: Scouting guidelines and biological control options for bedding plants (http://nevegetable.org/index.php/management/gpm?start=3).

-- Ruth Hazzard & Andy Cavanagh, UMass Extension

ALTERNARIA DISEASES OF BRASSICAS

Note the concentric rings in the lesions

Alternaria diseases of Brassicas are favored by humid weather and the combination of humidity, dew, fog and rain in late summer and early fall can cause these disease to escalate rapidly . These diseases can threaten the marketability of both leafy greens and heading crops. Brussels sprouts can be rendered unmarketable after a full season of healthy growth when Alternaria develops on the buds. Most growers are familiar with *Alternaria solani*, early blight of tomato and potato, but might be less familiar with the species that infect Brassicas.

Three Alternaria species cause serious damage to brassicas: *Alternaria brassicicola*, *A. brassicae*, and *A. raphani*. *Alternaria brassicicola* and *A. brassicae* infect broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, kohlrabi, kale, rutabaga, and turnip. *A. raphani* is most often found on radish, but can infect other brassica crops.

The most common symptom of Alternaria diseases is yellow, dark brown to black circular leaf spots with target like, con-

centric rings. Lesion centers may fall out, giving the leaf spots a shot-hole appearance. Individual spots coalesce into large necrotic areas and leaf drop can occur. Lesions can occur on petioles, stems, flowers, flower pedicels, and seed pods. Pod infection causes distortion, premature shattering, and shriveled, diseased seed that germinate poorly.

Alternaria species are simple parasites that overwinter primarily in diseased crop debris. Long-lasting resting or overwintering spores have been reported but are not widely found. The disease is favored by temperatures of 60-78° F and 12 hours of relative humidity of 90% or more. The main means of introduction into new areas is on infested seed. However, spread from one infected crop into nearby crops occurs easily once the disease is established on a farm. The fungi sporulate profusely and are spread throughout fields by wind, splashing water, equipment, and workers.

In 2009, a Brussels sprout variety trial was conducted by the UMass Vegetable IPM Program, with leadership from Touria El-Juoaul Eaton of the Dept of Plant Soil and Insect Sciences. Seven varieties were evaluated: Vancouver, Franklin, Nautica, Diablo, Dimitri, Roodnerf and Oliver; and two treatments were studied: topping and no topping. Severity of Alternaria symptoms on the harvested buds was one trait that was evaluated. Among these varieties, Oliver and Franklin showed significantly more disease damage than the other cultivars Topping had no effect on disease damage.

Management:

Buy certified, disease-free seed or treat seed with hot water.

Keep seedbeds disease-free to prevent the spread of disease and locate seedbeds so as to avoid wind-borne inoculum.

Practice long rotations with non-Brassica crops.

Practice in-season rotation: avoid planting succession crops in close proximity; rotate late season crops to new fields.

Control brassica weeds.

Avoid overhead irrigation during head development.

Control of Alternaria leaf spot on cabbage heads in the field is necessary for long-term storage.

Work in young, uninfected plantings first, and older, infected plantings last

Incorporate diseased plant debris into the soil immediately after harvest. Once plant residue has decayed, Alternaria is unlikely to persist in the soil.

Eliminate piles of culled crops and plants; manage compost piles to heat up well during decomposition.

Chemical recommendations:

azoxystrobin (Quadris): 6.0 to 15.5 fl oz/A (0 dh, REI 4h, Group 11). Apply preventively or at the first sign of disease. Do not repeat the application or rotate with other strobilurins. See label for list of allowed brassica crops.

chlorothalonil (Bravo Weather Stik): 1.5 pt/A (7 dh, REI 12h, Group M5). Apply at the first sign of disease; repeat at 7- to 10-day intervals.

mancozeb (Manzate Pro-Stick): 1.6-2.1 lb/A. (7 dh, REI 24 h, Group M3).

triflumizole (Procure): 6-8 fl oz/A. (1 dh, REI 12 h, Group 3).

ORGANIC CONTROL FOR CORN EARWORM IN SWEET CORN.

Corn earworm pheromone trap captures rose dramatically this week with captures between 10-48 per week at most sights. A 4-5 day spray schedule is recommended for a corn earworm population of this level. For organic growers, options for effective control are limited. While foliar sprays of Bt or Entrust will be effective for control of European corn borer in the tassel, additional measures may be needed for control of high populations corn earworm. Foliar sprays of Entrust can control light or moderate infestations of CEW; however, direct silk applications of vegetable oil mixed with a pesticide will reduce corn earworm and corn borer damage to ears by coating the silk channel and the kernels in the tip where CEW

(and also some ECB) larvae feed. This method may be used alone or in combination with foliar sprays. Certified organic growers must be careful to select approved materials. Direct silk treatment is especially useful for farmers who grow certified organic sweet corn, do not own a sprayer suitable for sweet corn, or grow relatively small acreage of corn. It works by coating the silk channel with oil, which is toxic to caterpillars and which carries the insecticide down the silk and onto the tip where caterpillars feed. A handheld oil applicator (the Zealater™) designed to make this hand-application method economical and comfortable, is available from Johnny's Selected Seeds (877-564-6697).

Success with the direct oil method takes attention to detail and timing. Here is a summary of some key points:

Timing. Corn should be treated with 0.5ml (not 5.0ml!) of oil, once during early silk stage. Action should be taken when >2 corn earworm moths are found per week in a trap in your area. The best time to apply oil is generally 5-7 days after silk growth starts, or 3-4 days after silk is full grown. At this time, the tips of the silks have just begun to wilt and turn brown and pollination is nearly complete. A good way to check the timing is to carefully husk a couple of representative ears and examine the kernels. The ideal time to treat is when the silk is still attached to the top 1" or less of the kernels.

Applications made too early after silk do not give better control, but may result in a higher rate of "cone" tips. This occurs when oil interferes with silk pollination resulting in unfilled kernels in the tip. While partially filled tips are a relatively common occurrence in sweet corn, cone tips caused by oil can be more pronounced.

Oil applied too late after silk initiation can result in more feeding damage to the kernels caused by caterpillars that entered the ear prior to the oil. There is a window, somewhere between 5 and 8 days after silk initiation, that provides the best combination of corn earworm control and ear fill.

Materials. Materials that may be used for the carrier include corn and soy oil (food grade) and carrageenan, (derived from seaweed). The oils penetrate the silk channel more easily and do not need to be injected as deeply into the tip. Materials that may be used for the toxin added to the carrier include spinosad, Bt and neem (azadiractin). Addition of a toxin reduces earworm damage to the tip. Based on studies conducted at UMass and with farmers, we recommend using corn oil or soy oil with added spinosad (Entrust) for the best overall insect control while minimizing physiological damage to the corn ears. Another effective option is carrageenan with Bt. To use a dry formulation of insecticide, an emulsifier is needed; one option is to add 5% volume of liquid lecithin to the oil and suspend the dry material in water then mix the two together. Use the labeled rate of pesticide per acre in corn. Add this to the approximately 2 gallons of oil it takes to treat 1 acre. For 2 oz per acre of Entrust (assuming 16,000 ears/acre), use 0.25 oz per liter of oil, this is approximately 4 tsp per liter of oil.

The UMass Extension Vegetable program has an eight-page publication, Organic Insect Management in Sweet Corn: Scouting, Thresholds and Management Methods for Key Caterpillar Pests in Sweet Corn, describing the pests, monitoring methods, materials, tools, timing, and how to integrate oil applications with other methods. Information on direct silk treatment for CEW control can also be found in the Using IPM in the field, Sweet Corn Insect Management Guide available through the UMass Extension Vegetable Program, Johnny's Selected Seeds, and on line at www.umassvegetable.org. Contact the Vegetable Program office (413-545-3696) to obtain a copy of either of these documents or visit our website to download a copy of your own.

SWEET CORN REPORT

The 2-3 inches of rain that the state received Monday night has improved growing conditions for the later plantings of sweet corn that are still out there. Corn to be harvested in October is entering whorl and pre-tassel stage now. Overall sales of sweet corn seem to be strong and some growers have been able to keep their retail prices up at $4.50 a dozen or higher since the beginning of the season. Pest pressure is high calling for a rigorous spray schedule in most places. Bristol County reported the highest trap captures, over 70 moths/week.

European corn borer second flight is still up in most locations. We are seeing larvae feeding in pretassel and tasseling corn. Scout pretassel and green tassel corn for feeding larvae. Control should happen when 15% or more of plants scouted have new feeding damage and/or live caterpillars actively feeding.

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
1.1-13.0	7.1-91	every 4 days
Over 13	Over 91	every 3 days

Location	Z1	EII	Total ECB	CEW	FAW
CT Valley			#/week	#/ week	
Sunderland	14	10	24	48	0
Hadley	5	5	10	47	0
Feeding Hills	9	3	12	10	1
Amherst	0	6	6	48	0
Hatfield	3	13	16	10	0
Central & Eastern MA					
Lancaster	1	20	21	4	0
Northbridge	17	33	50	16	4
Spencer	9	0	9	41	0
Dracut	0	4	4	0	0
Concord	0	10	10	27	2
Still River	0	0	0	28	0
Rehobeth	2	0	2	72	0
Tyngsborough	0	2	2	3	0
NH					
Litchfield, NH	0	16	16	29	1
Hollis, NH	0	3	3	13	2
Mason, NH	0	20	20	14	2

Where flight is 12 moths per week maintain a 6-7 day spray schedule in silking corn.

Low levels of armyworm flight have been caught throughout the state; new and old feeding damage seen in the field has been localized. Remember to only count live worms and new damage when scouting. Lots of times you will see old feeding damage where worms have either been killed from a previous spray or have moved into the soil to pupate, in which case you will not need a second (or maybe even a first) application. In heavy infestations a second spray for clean up may be necessary. It is important to clean up FAW before the silk stage to prevent tunneling into the side or tip of the ears.

Although damage from FAW is pretty obvious, caterpillar identification is also important. FAW small larvae can be found feeding in the rolled up whorl where feeding occurs. Tassel damage is more obvious and larger caterpillars can be seen easily. Look for a smooth body that is green or brownish in color with stripes' up to 1 ½ inches long. A dark head capsule can be seen with a characteristic inverted Y in light tan or white on the forehead. Scout whorl stage corn in groups of five and when 15% or more of the plants are infested an application can be made. Scouting for European corn borer can be done at the same time and in the same manner.

With trap captures this high we are likely to see heavy pest pressure in the corn. Each female corn earworm moth has the potential to lay 500-3000 eggs. That's a lot of caterpillars! Eggs hatch in 3-4 days and begin feeding immediately on the silks making their way towards the tips of developing ears. Monitoring flight patterns is essential to the management of this pest. Keep moving traps to fresh silk and checking them every 3-4 days. See CEW threshold chart for spray recommendations.

- A. Brown

UPCOMING MEETINGS

Northeast Organic Farming Association 2011 Summer Conference

August 12-14, 2011

UMass Amherst

To register: www.nofasummerconference.org

Email: info@nofasummerconference.org

Call: 978-355-2853

Farm Bill Education Session

August 12, 10:30a.m. to noon

UMass, Amherst, Lincoln Campus Center Room 803

New England Farmers Union Executive Director Winton Pitcoff will present an overview of the 2012 farm bill, how it will affect New England farmers and consumers, and how you can help shape this crucial piece of legislation. The event will take place before the start of the NOFA Summer Conference, but is free and conference registration is not necessary to attend. For more info., visit www.nofasummerconference.org/program.php#NEFU or winton@newenglandfarmersunion.org

2011 North American Strawberry Growers Assoc. (NASGA) Summer Tour

August 16 & 17

Tour includes Marini's Farm, Cider Hill Farm, Parlee Farms, Verrill Farm, Wards Berry Farm, Spring Rain Farm, Four Town Farm, and Foppema's Farm. Each farm has unique features you'll want to explore, plus you'll enjoy the great company and wisdom of strawberry farmers for two full days! See http://www.nasga.org/tours/nasga-summertour-2011.htm schedule for information and hotel reservations.

Boston Premier Tour de Hives

August 20, 2011. 9:30am to 8pm.

Tour starts at City Natives Apiary 30 Edgewater Drive, Mattapan

Visit 5 apiaries, different types of hives and apiary management styles while biking through the city (Mattapan, Roslindale, Jamaica Plain, Brookline). Honey tasting. Tour ends in Cambridge at the opening of 'Follow the Honey' store.

For more information and to pre-register, check www.nofamass.org

MA Tomato Contest for Commercial Tomato Growers

Boston City Hall Plaza Farmers' Market

August 27, 9:00am

This year's tomato contest will be held at the Boston City Hall Plaza Farmers' Market. The event is sponsored by the New England Vegetable and Berry Growers Association in cooperation with the Massachusetts Department of Agricultural Resources. This friendly contest is designed to increase consumer awareness of local agriculture. See http://www.mass.gov/agr/markets/tomato_contest.htm for details.

Irrigation Systems at Harlow Farm

August 30, 2011 - 4:00pm - 6:00pm

Harlow Farm, 117 Deep Root Dr Westminster, VT

The Harlow Farm in Westminster is a 150 acre certified organic farm in its third generation of farming. In this workshop, you'll take a tour of Paul Harlow's operation, including his various fields of irrigation. He'll discuss his investment in irrigation equipment, his systems for laying the irrigation (both overhead and drip), timing, and labor and crops that require special attention such as carrots, parsnips, lettuce and strawberries. You'll also visit a neighboring greenhouse. For more information contact info@nofavt.org, (802) 434-4122

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.