UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

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In this issue:

Crop conditions

Dry conditions persist throughout Massachusetts and southern New England. Dryness sinks deeper into the soil profile with each passing week of hot, sunny weather. Irrigation continues to demand a lot of farmers' time, and surface water sources are drying up. Fields without irrigation are wilting down. Even with irrigation, winter squash and pumpkin are starting to ripen early, and sweet corn tips are not always filled out. Peppers reacted to the 95+ degree heat by dropping blossoms, so later fruit set is not at the levels that growers hoped for. Melons have ripened weeks earlier than usual with excellent quality and a concentrated harvest period. Late vine crops successions such as cucumbers for fall harvest will be vulnerable to the downy mildew that arrived this week, and should be protected with appropriate fungicides; see article below. Sweet corn growers watch out for a big spike of fall armyworm and corn earworm throughout the region (see corn report). Beans continue to be subjected to leafhopper damage. Onions are maturing. Potato harvest is underway both for large potato growers and diversified farms. Fall Brassica roots may be subject to cabbage root maggot fly, and when exactly the fall flight of that pest will take place is anybody's guess given the racing heat units of this season; however, high soil temperatures will reduce damage.

Downy mildew update

Downy mildew was confirmed on cucumber in Norfolk County, MA. The hot dry weather has kept the risk of spore transport to our area consistently low to none for most of the summer; but it has finally made it's way here and it's time to add downy mildew specific materials to your spray rotation. All of the outbreaks in the mid-Atlantic states and the Northeast, including the one in MA, have been restricted to cucumbers and cantaloupes. Squash and pumpkins do not appear to be susceptible, while cucumbers and cantaloupe are at particularly high risk. Control measures should be concentrated on the most susceptible crops, especially those that will not be harvested for several weeks yet.

Materials effective specifically for downy mildew include Revus, Presidio, Tanos, Ranman, Gavel, Aliette, Forum, and Previcure Flex. For details on current recommendations for downy mildew specific materials, please see the article from July 29 Vegetable Notes, available at: http://www.umassvegetable.org/newsletters/documents/July292010VegetableNotes.pdf

Copper-based fungicides have traditionally been recommended for suppressing downy mildew in organic production systems. Caution is advised, however, as copper can be phytotoxic to some cucurbits, especially at higher temperatures - you may want to test a small patch first. We believe that the only copper that's both OMRI approved and registered in MA is NUCOP WG, but please check the label and check with your organic certifier.

Most studies involving other organic remedies haven't shown them to have consistent efficacy against downy mildew. There are a host of different products available - compost teas, neem products, microbials such as Actinovate, potassium bicarbonate products like MilStop and Kaligreen, or products like Serenade. Some people report success with them; however the results in spray trials are variable and overall point to them not being terribly reliable. Your mileage may vary. Microbials like Actinovate are best used preventatively, and early on. It's very difficult to introduce microbial organisms to an established habitat and expect them to survive and have an impact on the existing microbial populations. The most

successful implementations with those type of products have been in situations where they have been introduced early, in the greenhouse, into seedlings grown in relatively sterile media so they have a chance to establish before being subject to competition in the soil. See the article in this week's Vegetable Notes for more on using microbial fungicides.

-Andy Cavanagh & Bess Dicklow

BLACK ROT (GUMMY STEM BLIGHT)

Life Cycle

Black Rot is the fruit rot phase of the fungal disease gummy stem blight. In the Northeastern United States, the disease occurs mainly on winter squash, pumpkin, and greenhouse cucumber. The pathogen, Didymella bryoniae, is both seed and soil-borne. It may be carried in or on seed. In the field, the fungus can survive in infected plant residue for more than one year. Disease development is favored by relative humidity over 85% and leaf wetness periods greater than one hour. The optimum temperature for disease development is 75-77°F. Leaves are penetrated directly by the fungus, stems are infected through wounds or the expansion of leaf lesions, and fruit are infected through flower scars or wounds or possibly through direct contact with the soil when conditions are favorable. On fruit held for fall sales or winter storage, a water-soaked lesion develops, usually associated with an injury to the rind, and soon black rot develops. Large Halloween pumpkins are more susceptible to black rot than smaller pie types.

Wounding, striped cucumber beetle injury, aphid feeding, and powdery mildew all predispose plants to black rot infection. Control of powdery mildew by chemicals or by planting resistant varieties can significantly reduce black rot in pumpkins and winter squash.

Symptoms & Signs

Symptoms vary on different cucurbits. On pumpkin and winter squash, symptoms on the leaves begin as a marginal necrosis followed by larger, wedge shaped necrotic areas, often with a yellow halo. Stem cankers develop in the cortical tissue and a brown, gummy exudate is produced. Small fruiting bodies may appear as black specks in diseased tissue. Stems may be girdled on seedlings, killing the plant. On older plants stem cankers lead to wilt and decline. Small, water-soaked spots develop on fruit, enlarge, exude gummy material and contain many black speck-like fruiting bodies. Check fruit weekly for signs of black rot.

Cultural practices to reduce black rot:

- Powdery mildew tolerant cultivars should be selected and powdery mildew should be controlled, as this disease predisposes the crop to black rot.
- Control cucumber beetles and aphids as these insects can increase the severity of black rot in your crop.
- Use certified disease-free seed for all cucurbit plantings.
- Rotate out of cucurbits for two years. Fields in the second or third year of winter squash or pumpkin often develop black rot.
- Crop debris should be plowed under promptly after harvest.
- Reduced tillage systems with cover crop residue on the soil surface may improve fruit quality.
- Cure pumpkin and squash at 85°F for two weeks before storage. An empty greenhouse may work well for this.
- Avoid chilling injury to winter squash and pumpkins, which is a cumulative effect from temperatures below 50°F. Store fruit at 50° to 55°F and ~60% relative humidity. For winter squash in long-term storage, pay special attention to storage temperatures when outdoor temperatures drop in December and January. Chilling injury activate dormant black rot lesions and increase losses in storage.

Satisfactory control of black rot can usually be obtained by regular applications of protectant fungicides, which are generally applied as part of a powdery mildew spray program. In early crops or non-rotated fields you may want to apply a protectant alone before the onset of powdery mildew.

- excerpted from "Diseases of Cucurbit Crops:Scouting & Management Guide" by Andy Cavanagh, Ruth Hazzard, M.

POSTHARVEST PRACTICES IN PRODUCE PRODUCTION

Harvested produce continues to be physiologically active but no longer has the whole plant to support the activities of metabolism, moisture uptake, temperature control, etc. To be successful in the marketplace, it is critical to preserve as much of the fresh value of the product as possible. That is the purpose of exercising proper postharvest preservation practices. One of the conditions that occurs quickly after harvest that accelerates change in quality is the build-up of heat in the produce. This is a natural result of the process of respiration in the plant. Accelerating physiological processes consume sugar, reducing product quality, and generating more heat. As heat builds up, more respiration occurs, stimulating more generation of heat. If that cycle of heat-build-up can be arrested, the preservation of quality in the harvested product becomes much easier. Cooling the produce is the answer.

Many growers concerned about the cost of post-harvest technology take advantage of nature and the opportunities it provides to minimize the challenge of preserving produce quality. One way they can do this is to harvest when the produce is naturally coolest. This occurs just before sunrise. Assembling harvest crews early to be ready just as morning light becomes adequate accomplishes a couple of worthy goals. The product is cool at harvest, and the harvest crew is enjoying work under better conditions than later in the day. The longer produce sits in distribution channels, however, the more likely a grower needs to use more energy-intensive systems for preserving quality. Growers can benefit enormously from studying postharvest issues and capitalizing on tools for postharvest preservation. This is a key to developing a reputation for quality. An excellent resource for growers to learn more about postharvest technology is a publication from the University of California at Davis: Small Scale Postharvest Handling Practices: A Manual for Horticultural Crops, available online at http://ucce.ucdavis.edu/files/datastore/234-1450.pdf .

- Bill Shoemaker, Purdue; reprinted from August 11, 2010 PestMinder Volume 17, Issue 15

SPIDER MITES IN EGGPLANT

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.

Watch for spider mites in greenhouses where vegetable transplants are growing. Also scout eggplants in the field. Checking for mites must be done by examining foliage. Adult mites are not found on sticky cards. Mites often develop as localized infestations on particular groups of plants such as beans or tomatoes. Sample plants by turning over leaves and with a hands-free magnifier (Optivisor) or hand lens, check for the presence of spider mites as well as symptoms or webbing. 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. Most spider mites are found on the underside of leaves. A 10X hand lens is key for identifying the mite species, but injury, webbing, and the tiny adults can be seen with the naked eye.

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.

In the field, 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 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

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.

For 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 2010-2011 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.

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.

- Ruth Hazzard, UMass Extension. Source: 2010-2011 New England Vegetable Management Guide. Updated August 2010

HEAT PROBLEMS IN VEGETABLE CROPS

The 2010 growing season is leading to lots of problems in vegetable crops. Rainfall varies from too much to too little within week. Temperatures have been high, with record-breaking levels reached in early July. Transplants on black plastic mulch can normally handle high temperatures without much problem. When air temperatures reach the high 90's however, air around the transplants is at least 20 degrees higher. This is resulting in girdling of the stem, often followed by secondary fungal infection, with plants eventually dying. Blossom-end rot, more often seen in tomatoes, is rampant in peppers. It occurs when calcium does not reach the blossom end of the fruit, usually due to excessively dry soils. Occasionally it's seen in waterlogged soils. In peppers, the typical dark brown spot may be on the sides of the fruit as well as the bottom. Keep plants well watered. If sidedressing, use a nitrate form of nitrogen. Hot and dry conditions are impacting cucumber quality. High temperatures and especially dry conditions result in a higher cucurbitacin level in leaves, stems, and fruits. Cucurbitacin is a natural plant compound produced in some varieties when they are under stress, and results in a bitter flavor. Some varieties, most "Burpless" types, lack cucurbitacin even under stress. Bitterness will decline after the stress is relieved. Make sure plants are well watered to minimize the problem.

Another problem in vine crops is poor fruit set. High temperatures push male flowers ahead of female flowers. High temperatures may also limit bee activity, resulting in poor pollination. This can lead to curled or oddly shaped fruit or even fruit that fails to develop and falls off the vine while still very small. Stagnant air masses may lead to ozone damage on crops. Common ozone symptoms are small, irregular, shaped spots that range in color from dark brown to black (stipple-like) or light tan to white (flecklike). These spots are found only on the upper surface of the leaf. Very young and old leaves are less susceptible to ozone while newly mature leaves are the most susceptible. With severe damage, symptoms may extend to the lower leaf surface. Flecks from insect feeding are usually spread uniformly over the leaf surface while ozone flecks are concentrated in specific areas, usually at the leaf tip and along the margins. The most sensitive crops include: Bean, Broccoli, Muskmelon, Onion, Potato, Radish, Spinach, Sweet Corn, Tomato. Intermediate crops include: Carrot, Endive, Parsley, Parsnip, and Turnip. Tolerant crops include: Beet, Cucumber, and Lettuce.

- Steve Reiners, Cornell

BIOLOGICAL CONTROL OF PLANT DISEASES

Biological control of plant diseases can be broadly defined as the use of one organism to influence the activities of a plant

pathogen. Biocontrol organisms can be fungi, bacteria, or nematodes. Most are natural inhabitants of the soil and the environment and are not pathogenic to birds, mammals (including humans), and fish. They are not genetically modified and generally have short re-entry and days to harvest intervals. Biocontrol organisms work by competing with the pathogen for space and nutrients, by parasitism or predation, by inducing the plant's natural defense system, and/or by the production of antimicrobial substances (antibiotics like streptomycin). Often several mechanisms function together to make an organism effective. These products are living organisms or dried spore preparations and must be handled differently than conventional fungicides. They are sensitive to temperature extremes and must be applied immediately after mixing with water. They may also require special attention to pH, exposure to chlorine or UV light, and their shelf life may be limited.

There is a lot on interest in these products and few replicated University field research trials on which to base recommendations. Product efficacy claims are often based upon company sponsored research that occurred in greenhouses or other controlled environments. A brief summary of field trials found in recent literature follows:

Actinovate (*Streptomyces lydicus*) reduced root and seed rot severity in peas and resulted in significantly higher final emergence and significantly lower final disease in spinach challenged by Pythium and Fusarium (soil-borne fungi). No effect on Phytophthora fruit rots of pepper and pumpkin was obtained as well as no effect on Powdery Mildew on pumpkin. Compete Plus (Six species of Bacillus, *Streptomyces griseoviridis*, *Trichoderma harzianum* plus organic nutrients) significantly reduced incidence of potato tubers with both Black Scurf (*Rhizoctonia solani*) and common scab (*Streptomyces scabies*). BioYield (plant growth promoting rhizobacteria) significantly reduced incidence of root rot (Pythium, Rhizoctonia) and wirestem (Rhizoctonia) on broccoli, resulted in significantly less post emergence disease on spinach (soil-borne fungi), but had no effect on tomato foliar diseases such as Septoria, Alternaria (Early Blight), and Sclerotinia (White Mold). Compost Tea significantly reduced potato tubers with both Black Scurf and Common Scab and reduced scab severity, while resulting in significantly lower final biomass and final emergence when applied to spinach to combat soil-borne diseases .Bi-nucleate Rhizoctonia are effective against diseases caused by Rhizoctonia and significantly reduced Black Scurf and stem canker on potatoes as well as root rot and wirestem incidence on broccoli. Contans (*Coniothyrium minitans*) is applied to the soil before cropping and can significantly reduce lettuce drop caused by Sclerotinia species. Kodiak (*Bacillus subtilis*) is a seed or soil treatment that significantly reduced Black Scurf and stem canker on potato, resulted in significantly less post emergence disease and significantly higher biomass in spinach challenged by soil-borne diseases, and significantly reduced seed and root rot in peas. Treatment with Kodiak had no effect on Rhizoctonia on bean, Phytophthora on pumpkin, or Common Scab on potato. Muscador (*Muscador albus*) is a novel biocontrol organism that acts as a biofumigant by producing gaseous compounds. It has shown good efficacy against storage insect pests of apples and potatoes. Application of Muscador to radish resulted in significantly less root and hypocotyl rot and less Phytophthora fruit rot on pepper. Combining Muscador treatment with a resistant pepper cultivar significantly reduced Phytophthora disease severity. No effect of Muscador was noted with Clubroot (Plasmodiophora brassicae) on radish and Phytophthora on winter squash. Plant Shield (*Trichoderma harzianum*) had no effect on Rhizoctonia on bean or potato, Common Scab on potato, Botrytis on tomato, or Early Blight on tomato, although a trend toward reduced defoliation was noted. Serenade (*Bacillus subtilis*) failed to control the tomato diseases anthracnose, bacterial canker, and bacterial spot; had no effect on Sclerotinia sclerotiorum (White Mold) on lettuce or beans; and did not reduce Powdery Mildew on pumpkin or winter squash. Serenade did significantly increase yield and lower the incidence of root rot caused by Rhizoctonia on both beans and radish. SoilGard (*Trichoderma virens*) significantly reduced Black Scurf incidence and Common Scab severity on potato, resulted in significantly less post emergence disease on spinach from soil-borne disease, while having no effect on spinach and Pythium damping-off.

If one word could be used to describe research trials with these materials, that word would be inconsistent. The environment and application techniques have large impacts on their efficacy. Biocontrol organisms are only effective as preventive control and proper timing of application is critical. An unfavorable environment for their establishment or an environment too favorable for the pathogen can result in control failure. These organisms perform best at low pathogen populations; once disease is established, they will have little positive effect. Establishment of biocontrol organisms on foliar surfaces is difficult; most positive research results come against soil borne problems such as root, fruit, crown and seed rots. Combining these products with a naturally resistant or tolerant cultivars is a promising avenue for their use. Biocontrol organisms can also be integrated with naturally suppressive composts, improved sanitation and other cultural controls, and with conventional fungicides to reduce disease control chemical applications.

- M. B. Dicklow, UMass Extension

Corn report

Things are dry, very dry. Ears are full but the not as sweet and juicy as usual due to the lack of moisture. Prices are low and sales are still off in the wholesale market. Farm stands are still moving corn fast with prices hovering at $4.00- $5.00 a dozen. Pest pressure form corn earworm and fall armyworm is high which has kept many growers on a 3 day spray schedule.

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

European corn borer is generally declining, though high trap counts were reported at a couple of locations. We sometimes see a second peak in late August, which may reflect a partial third generation. It is important to know that the ECB overwinters here in New England in corn stalks and stems of other host plants. If you are finished picking in a field make sure to chop stalks and till in the plant debris to cut down on next years population.

Corn earworm trap counts reached into the 200's in the eastern part of the state this week. The average trap count for the week across the state was 57 which warrants a 3-4 day spray schedule. Corn earworm trap counts remain high in all areas of Massachusetts, especially the central and eastern parts of the state and coastal areas. CEW remains the driving force behind spray schedules. A 6-7 day schedule should be maintained where corn earworm is 2-3 moths per week (see table above). If you are catching 7 or more moths per week (1 moth per night or more), you should be on a four day schedule. If you have pheromone traps make sure that you move them to fresh silk to get an accurate measure of CEW activity. Keep checking traps at least twice a week so you don't have a surprise attack from a CEW infestation in your silking corn. Numbers can reach alarming levels overnight when weather fronts move up the coast from the South.

Location	ZI	EII	Total ECB	CEW	FAW
CT Valley					
Sunderland	0	2	2	30	0
Hadley	3	6	9	66	16
Southwick	4	10	14	15	0
Hatfield	0	0	0	67	0
Feeding Hills	0	0	0	40	5
Central & Eastern MA					
Dracut	0	5	5	64	3
Concord	3	4	7	70	15
Northbridge	0	2	2	21	7
Spencer	0	1	1	20	0
Sharon	_	_	_	200	_
Still River	2	4	6	67	0
Lancaster	0	0	0	30	0
Littleton	0	10	10	50	5
Tyngsboro	0	1	1	63	0
Rehoboth	2	2	4	24	0
Framingham	1	0	1	43	10
NH					
Litchfield, NH	21	0	21	89	160
Hollis, NH	6	0	6	95	11
Mason, NH	3	0	3	22	0

Fall armyworm trap counts have risen this week in some locations in MA while southern New Hampshire continues to report trap counts above 100 in the last week. Infestation levels in the field are anywhere from 40-50% in the whorl stage corn that is still out there. Scout whorl stage corn frequently for the obvious ragged feeding damage and light orange frass that is left behind. Caterpillars are easily found feeding inside of the whorl when tassels are removed. Radiant and Avaunt are good materials for FAW control. We have seen a decline in efficacy of Warrior against FAW in the past few years.

Late season field management. Early fields are starting to get tilled under and ready for cover crops. Make sure to get your cover crops in as soon as possible to conserve the nitrogen from crop residues. The sooner that rye or oats is planted, the more nitrogen you

will recover from the soil and hold over for next year. Given the rising price of fertilizer, each extra week of cover crop growth will give you a worthwhile payback. Research conducted by Stephen Herbert at UMass has shown that planting rye or oat after September 15 dramatically reduces the ability of the roots to reach the available N in the soil and to produce enough canopy to protect soil from erosion. Cover crops planted in August develop larger, deeper roots and more canopy – providing better Nitrogen uptake, less leaching, and more protection of soil from erosion. Planting legume cover crops along with oat or rye will provide additional nitrogen for next season. Hairy Vetch and red clover are two options.

- Amanda Brown

UPCOMING MEETINGS

2010 Northeast Organic Farming Association Summer Conference

August 13 -15

UMass Amherst

Over 200 workshops on organic farming, gardening, land care, sustainability and homesteading.

Teen and children's program, dozens of outdoor exhibits and vendors.

Keynote speakers: Sally Fallon Morrell, founder of Weston A. Price Foundation and author of bestselling book Nourishing Traditions: The Cookbook that Challenges Politically Correct Nutrition and the Diet Dictocrats. Second keynote speaker is Dr. Fernando Funes, of the Cuban Association of Agronomists and Foresters. Dr. Funes will speak on the Cuban transition to a sustainable farming system during the Peak Oil crisis and Soviet withdrawal in the late 1980. Entertainment including dancing, country fair, live auction.

Dorm rooms, camping and wholesome organic meals. To register visit www.nofasummerconference.org. For more information contact the NOFA Summer Conference office at (978) 355-2853 or info@nofasummerconference.org.

26th Annual Massachusetts Tomato Contest

Monday, August 23, 2010

Please join us for the 26th annual Massachusetts Tomato Contest. 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.

Schedule of Events:

9:00 am to 10:15 am – Tomato drop-off and registration

10:30 am – Judging of tomatoes by panel of experts

12:30 pm– Presentation of awards

If you cannot attend the contest on Monday, tomato entries can be dropped off Saturday August 21st or Sunday, August 22nd at a number of locations across the state. Please contact one of the following representatives to confirm drop-off entry(s).Tomatoes that are dropped off will be brought to Boston for judging. See below for a list for drop-off sites.

Deep Zone Tillage Twilight Meeting & Grower Discussion

August 24, 2010

Cemetery Rd., Hadley, MA

5pm-7:30 pm

Meet with Alan Zuchowski and Wally Czajkowski, who have both acquired zone building equipment and have been experimenting with Deep Zone Tillage (DZT) in sweet corn, vine crops and other crops. Hear the ups and downs of their experience, see the equipment, and visit some experimental fields. Both are enthusiastic about the system. Anu Rangarajan, Cornell State Specialist for Fresh Market Vegetables, who has years of research and on-farm experience in reduced till systems, will answer questions about cover crops, crop establishment, fertility, and weed control in both organic and conventional zone till systems. UMass extension personnel will be on hand to talk about their research into how this system affects soil and soil-borne diseases, and how you can try DZT on your farm next year without having to invest in expensive equipment. Plans for DZT next season start this fall with your choice of cover crops!

We will meet at the field on Cemetery Rd, in Hadley., MA 01035. Look for signs where West St turns north off Rte 9, then turn left on Cemetery Rd and watch for signs and equipment. Park on the side of the road. For more information contact Andy Cavanagh at 413-577-3976.

Pesticide applicator contact hours have been requested.

Northeast Greenhouse Conference and Expo 2010

November 3 - 4, 2010

DCU Center, Worcester, MA

New England Floriculture, Inc., invites you to attend The Northeast Greenhouse Conference & Expo in Worcester, Massachusetts and join other growers and retailers for the largest nationally recognized floriculture industry show in New England.

For registration and details, please see: http://www.negreenhouse.org/

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.