UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 19, Number 8 June 26, 2008

In this issue

Crop conditions

The state received a generous helping of rain this week. Average rainfall for the state was 1.7 inches with a range of .5 inches in the eastern part of the state to 3.0 inches in the Berkshires. Scattered thunderstorms brought wind and rain along with some hail that took out entire pumpkin plantings in certain locations forcing growers to re-plant. Wet conditions make field work difficult if not impossible. Many growers are patiently waiting for a dry day to catch up on cultivating, spaying and fertilizing that has been delayed. The pre-sidedress nitrate test is a good tool to determine if a nitrogen side dress is needed after the crop is established -- before corn gets above 12-18 inches, or before vines start to run on cucurbits. Tests will be processed within two days at the UMass Soil and Tissue Testing Lab. For more details call the Soils Lab at 413-545-2311 or see http://www.umass.edu/plsoils/soiltest/.

On a drier note, greenhouse tomatoes are ripening. Summer squash, zucchini and cucumbers along with lettuce, greens, peas, cabbage and brassicas are being harvested. Seasonal farm stands are opening up and sales have been good. Despite the rain and saturated fields, pick-your own operations remain busy and sales are steady at the local farmers markets.

Guidelines for cucurbit disease management

The list of diseases affecting cucurbit crops is long and new diseases such as Plectosporium Blight, Downy Mildew, and Phytophthora capsici are becoming more prevalent in recent years. Management of disease is complicated by the different classes of materials effective against pathogens in different classes and the danger of fungicide resistance development in pathogen populations rendering the most effective materials obsolete.

Systemic fungicides provide the best control of many cucurbit diseases because they provide protection to both the upper and lower leaf surfaces. However, systemics have one mode of action per fungicide group and tend to have more problems with resistance than contact fungicides, which provide multi-site activity against diseases. Systemic fungicide resistance can occur in a single season if the product is overused. Once a disease organism develops resistance to a systemic material, the pathogen may quickly become resistant to other products in the same fungicide group (i.e. stobilurins). As a result, newer materials that have not been exposed to disease organisms as long usually tend to work better than older products, but not for long. In contrast, many contact fungicides have been used for decades without experiencing resistance problems. Although stobilurin fungicides have been some of the most effective materials available in recent years for most cucurbit diseases, powdery mildew and black rot have already developed resistance to strobilurins in some states, and resistance for downy mildew has occurred outside the U.S. The best resistance management strategy to help preserve the useful life of the systemics is to make a single application from each effective fungicide group (anilide, stobilurin and DMIs) in a given season. In addition, pathologists are now recommending that all systemic materials be applied with a contact fungicide to help slow resistance development.

Contact fungicides such as copper hydroxide, sulfur, chlorothalonil, and maneb may aid in the control of Plectosporium blight and possibly other diseases, but they don't have the efficacy to provide sufficient protection when used alone. Chlorothalonil (i.e. Bravo) is effective at controlling Plectosporium blight but does not work as well as many systemic fungicides on powdery mildew. It can be mixed with systemics, such as the DMIs, myclobutanil and triflumizole (Nova or Procure), or protectants like sulfur (i.e. Microthiol Dispress) which work well on powdery mildew but do not control Plectosporium blight or other important cucurbit diseases. Fungicides must be mixed or alternated to produce a combination that will provide a full range of disease protection. Systemics must be alternated with fungicides outside of their FRAC group (different active ingredient) to prevent the build up of resistance. In addition, copper can cause phytotoxicity in many new varieties of pumpkins. Caution: do not apply sulfur if temperatures exceed 90˚ F, before/with/after oil applications, or to melons due to phytotoxicity problems.

Scout pumpkin and summer squash plantings weekly for symptoms of both Plectosporium and powdery mildew. Examine the lower surface of 50 leaves for small (1/4"), white powdery mildew colonies and all plant parts for Plectosporium lesions. If powdery mildew is detected first, begin your spray schedule with Pristine, the only strobilurin fungicide still effective against Powdery Mildew. Pristine contains boscalid, a fairly new and effective systemic material for powdery mildew control, and pyraclostrobin, the same active ingredient found in Cabrio (Anilide + Strobilurin groups). Follow this with a DMI type fungicide (Procure or Nova) at the highest recommended label rate. DMIs are also systemic, and should be mixed with a contact fungicide. Fungicide applications should be applied on a 7-10 day schedule and should be limited to a single application per season for each fungicide group. If Plectosporium blight is detected before powdery mildew, apply chlorothalonil (i.e. Bravo) on a weekly basis until powdery mildew is found. In unusually wet weather, in unrotated fields, or if Plectosporium is detected before powdery mildew, start your spray program as soon as the disease is detected or at fruit set. Apply chlorothalonil (i.e. Bravo) every 7-10 days until powdery mildew is found during weekly scouting trips. Then add a systemic material or sulfur to the spray mix for mildew control, taking care to alternate between fungicide groups to help prevent resistance. Copper or maneb can be used with the strobilurin application to rest Bravo.

Downy Mildew (Pseudoperonospora cubensis) and Phytophthora Blight are not true fungi; they are controlled by an entirely different set of chemicals due to differences in their biology. If Downey Mildew occurs before Powdery Mildew, we would recommend a phosphorus acid product like Prophyte or Aliette, alternated with Tanos (famoxadone and cymoxanil), Gavel (zoxamide plus mancozeb), Ranman (cyazofamid), Forum (dimethomorph), PrevicurFlex (propamocarb) or Reason (fenamidone) mixed with either Bravo or Maneb. Gavel cannot be used in pumpkins or winter squash because it contains mancozeb. The progress of Downy Mildew epidemics can be monitored on-line at http://www.ces.ncsu.edu/depts/pp/cucurbit/ or by UMass Vegetable Newsletter to better time scouting. Ridomil Gold/Bravo is also generally effective against Downey Mildew and some control may be obtained with strobilurins like Quadris, Cabrio, or Pristine. Gavel, Ranman, Forum, Ridomil Gold and phosphorous acid fungicides may help to manage Phytophthora Blight in conjunction with cultural practices to manage soil water.

As always, accurate identification of the disease is critical to making good decisions about your spray program. Thanks to funding from MDAR, the EPA and NEVBGA we can offer consultation and free diagnosis for a limited number of cucurbit disease samples through the UMass disease identification lab. If you have questions about your spray programs or would like to submit a disease sample for identification and control recommendations, please call or email Andy Cavanagh at 413-658-4925 or acavanagh@psis.umass.edu.

- source material from Jude Boucher, UConn. Adapted by M. Bess Dicklow, UMass

DOWNY MILDEW UPDATE: JUNE 26, 2008

Downy Mildew has been reported in Ontario, Canada. Normally this disease overwinters only in the southernmost parts of Florida, and slowly makes it's way up the coast, traveling on storm fronts from cucurbit field to cucurbit field, reaching Massachusetts late in the summer. Occasionally it overwinters in greenhouses in Canada, which means that it gets here much earlier in the season. This looks like one of those years. The University on North Carolina maintains a website that tracks the spread of the disease and provides risk forecasts based on the weather and the likelihood of the disease being transported. We'll be checking that website and posting the forecast on the front page of our website, www.umassvegetable.org, as well as posting updates in this newsletter. For more detailed information, you can access the NCSU page directly at http://www.ces.ncsu.edu/depts/pp/cucurbit/forecasts/c080625.php.

The current forecast calls for Thursday's weather event to be tracking east and ESE, crossing southern New England on Friday. Conditions will be favorable for disease transport during this event. Thursday-Friday forecast: HIGH Risk for cucurbits in southern Ontario and western NY. Moderate Risk for eastern NY and southern New England. Low Risk otherwise. We do not recommend spraying at this point. However, since the disease is already in Ontario, this may be a year when it shows up earlier than usual. Keep a close eye on your cucurbit fields. We have funding from MDAR, EPA and NEVFGA to assist growers in diagnosing and providing recommendations for control of various cucurbit diseases. If you see something happening in your fields that you would like diagnosed, or if you would like consultation on which materials work best for which diseases and how to manage resistance, please call or email Andy Cavanagh at 413-658-4925 or acavanagh@psis.umass.edu.

SWEET CORN REPORT

Sweet corn growth has been excellent over the past couple of weeks due to the warm temperatures and adequate rainfall. Many growers across the state have silking corn and have made their first sprays if necessary. ECB flight is down with a low of zero in Deerfield and parts of central and eastern MA and a high of 11 in Hadley. Flight will continue to decrease until the second generation emerges.

In the Pioneer Valley, field scouts continued in tasseling and silking sweet corn fields. In unsprayed fields, infestation levels were at or just above threshold, around 10-17%. Scout your pretassel corn and if >15% have borers, spray as tassels emerge. This is when borers are most exposed and easily killed. While scouting, we were seeing many newly hatched borers in the developing tassels. The ECB larvae will start feeding in the young tassels inside the whorl, and then move into the stalk of the tassel as it emerges. If not controlled, the borers will make their way into the stalk and burrow into the back side of the ear when it forms. Corn in silk should be sprayed on a weekly basis if ECB flights are still above 7 per week on your farm.

Corn ear worm traps were set up this week in silking fields. Two traps per field should be placed with the lure just above fresh silk, to attract adult moths. Very low flight has been detected in two locations in the eastern part of the state, but none elsewhere. As soon as silk is found, traps should be set up in order to catch first flight. Corn ear worm thresholds in silking corn are 1.5-3.5 moths/week, warranting 6-day spray intervals. Contact Great Lakes IPM at www.greatlakesipm.com or by calling 989-268-5693 to order monitoring supplies.

- Amanda Brown & Courtney Huffman, UMass Extension

Location	Z1	EII	Total ECB
Bershires/Champlain Valley			
Pittsfield	0	0	0
CT Valley			
South Deerfield	0	0	0
Sunderland (1)	0	2	2
Sunderland (2)	4	4	8
Whatley	1	4	5
Hadley (1)	1	10	11
Hadley (2)	0	4	4
Amherst (1)	2	3	5
Amherst (2)	2	2	4
Granby	3	1	4
Easthampton	7	0	7
Nantucket County			
Nantucket	1	2	3
Central & Eastern MA			
Dracut	11	0	11
Rehoboth	2	5	7
Still River	0	2	2
Concord	2	0	2
Leicester/Spencer	0	2	2
Northbridge	0	0	0
Tyngsboro	1	7	8
Lancaster	0	7	7
NH			
Litchfield, NH	5	1	6
Hollis, NH	0	22	22
Mason, NH	0	1	1

BIOLOGY AND POSTEMERGENCE CONTROL OF YELLOW NUTSEDGE

Yellow nutsedge is a perennial sedge that sprouts from a tuber or 'nutlet' anytime after early May. Tubers can live for up to 15 years in the soil. When the plant is about 4-6 inches high, the tuber that it sprouted from is dead. If it is burned back, in a non-crop situation, with a contact material (Gramoxone (paraquat), flaming, acetic acid, or scythe (pelargonic acid)) prior to that size, the tuber will likely resprout. Roundup (glyphosate) will control it even when it is less than 4-6 high. The plant acts as an annual plant until about early July when the underground rhizomes begin to make new tubers. It is important to manage this weed before new tubers form because as the tubers mature, they separate from the mother plant much like a daughter plant separates from a strawberry plant. In general, between-row cultivation will not control yellow nutsedge well. Rather, the cultivator will move young plants down the row and spread them in the field. However, in fallow fields regular tillage (disc, tiller) during the season can manage this weed well for future crops. Nutsedge tubers die easily with cold. One of the first papers ever published on yellow nutsedge control concluded that 2 consecutive winters of turn plowing (exposing tubers to freezing temperatures) would kill them.

A few herbicides provide excellent control of yellow nutsedge. These include preemergence options such as Lasso (alachlor), Dual (metolachlor), Eptam (EPTC), Sutan (butylate) and Sandea (halosulfuron). Sandea and Basagran (bentazon) provide postemergence control. Specific recommendations by crop and a chart showing susceptibility of nutsedge to herbicides can be found in the New England Vegetable Management Guide at www.nevegetable.org. Sandea is now registered on a variety of vegetable crops. It is effective at very low rates but it is important that application equipment be well calibrated to avoid over-application. Sandea can be applied preemergence or postemergence in several crops including asparagus, sweet corn, tomatoes, beans, cucumbers, pumpkins, and some melon types. For pumpkins, applications can be made to direct-seeded crops after seeding but before 'cracking'. Postemergence applications should not be made until the crop has 2 to 5 leaves. A non-ionic surfactant but NOT a crop oil should be added for optimal control. Although Sandea will control or suppress yellow nutsedge and a number of broadleaf weeds, lambsquaters will not be controlled with postemergence applications. Weeds should be in the 1 to 3 leaf stage when treated. Weeds that are larger than this will not be well controlled. Slight stunting and yellowing of the crop has been observed within a few days of postemergence application. Usually the crop recovers quickly with little effect on yield. Another option for nutsedge control is the use of Basagran. It is labeled for beans, peas, and sweet corn. Apply when the nutsedge is 6 to 8 inches tall. Best results are obtained by treating when temperatures and humidity are very high. Two applications will probably be needed for good control. Basagran will control many broadleaf weeds but will not control grasses.

WATCH FOR LEAFHOPPER IN BEANS AND POTATOES

Watch fields for potato leafhopper. Several growers have reported seeing leafhoppers in potato. Adults are about 1/4 inch long, light yellow-green, and fly up from foliage when it is disturbed or shaken. Nymphs are found on the underside of leaves, light green, wedge-shaped and very fast-moving. Damage can be severe on early-season varieties of potato, as well as in green beans. Beans are more susceptible when they are young than at later stages.

Potato Leaf Hopper Nymph and Adult

Adults and nymphs feed by inserting a needle-like beak into the plant and sucking out sap. They also inject a toxin into the plant, which causes yellowing, browning, and curling of leaves. In potato, leaf margins turn brown and brittle first, followed by death of entire leaves. In beans, the leaf turns mottled brown as if infected with a disease before dying completely. Both adults and nymphs cause damage. Plant injury and yield loss can be significant.

It is important to protect plants when leafhoppers first arrive, before nymphs build up. In potato, the threshold is based on insects per leaf: Nymphs can be monitored by visually inspecting lower leaf surfaces on lower leaves. Treat if more than 15 nymphs

are found per 50 leaves. University of Connecticut has established a threshold of 1.5 leafhopper per leaf in eggplant. In potato, some materials registered for Colorado potato beetle adults will also control leafhopper, including neonicotinoids. Other carbamate, synthetic pyretrhoids and organophosphate products are also registered. Refer to the New England Vegetable Management Guide for recommended materials. An update list can be found at www.nevegetable.org (under crops/potato)

For organic potato growers, pyrethrin (PyGanic EC5.0) has been shown to be the most effective product for reducing leafhopper numbers and damage. Good coverage is important. The residual period is short. Spraying late in the day or in the evening may provide better control than spraying early in the morning. Don't wait for numbers to build up.

SQUASH VINE BORER AND SQUASH BUGS

Squash bugs have been seen in cucurbit crops, and squash vine borer (SVB) should be showing up soon. Squash vine borer moths are day-flying moths with a 1.0 to 1.5 inch wingspan. In flight, they look like wasps. There is one generation each year and adults emerge in late June/early July. They lay eggs at the base of squash plants, and upon hatching, larvae bore into stems (where they are protected from insecticides). Unless you use traps or scout fields for evidence of eggs or larvae, the first sign of squash vine borer infestation can be wilting vines in July and August. By that time, it is too late to do anything.

Squash Vine Borer Larvae in Stem

Growers should scout their pumpkin and squash fields weekly for squash vine borer from late June through early August. Examine the base of vines for evidence of larval feeding (sawdust-like frass near entrance holes) and then split open the stem to confirm the presence of larvae, which suggests more eggs are being laid. Two insecticide sprays, ideally applied to the base of the plants, and timed five to seven days apart, will control newly hatching larvae before they are able to bore into the stem. Alternatively, you can monitor with a Scentry Heliothis pheromone trap from early June through early August. Make 2 to 4 weekly applications if more than 5 moths per week are captured. Timing is very important. Treat base of stems thoroughly to target hatching larvae. Some selective materials, such as spinosad (Spintor or Entrust), provide excellent control of hatching SVB larvae.

Squash bugs are serious pests of pumpkins and squash. Both adults and nymphs feed by inserting their beak and sucking juices from plant tissue. Large populations can cause partial wilting, and later in the season, squash bugs may feed on the fruit, causing them to collapse or become unmarketable. Adults are 0.5 to 0.75 of an inch long, flattened and grayish-brown. Wingless nymphs are similar in appearance to adults, and are whitish when small, with a brown head, and grayish white when larger. Eggs are laid in clusters usually on the underside of leaves and are orange when first laid, but turn bronze-colored before they hatch.

Squash bugs are virtually impossible to control later in the season when nymphs are large and the canopy is dense. Squash bugs are generally controlled by clean cultivation, crop rotation and sprays for cucumber beetle, but are often resistant to all but a few insecticides (i.e. bifenthrin). If possible, rotate cucurbit crops between fields as far apart as possible. Scout undersides of leaves for squash bug adults and eggs and treat if the copper-colored egg masses exceed one per plant.

Squash Bugs Nymphs

Time squash bug sprays to kill young

nymphs which are easiest to control. Thorough coverage is necessary. Treat late in the day when the flowers are closed to reduce risk to bees. Keep headlands mowed and free of trash to reduce overwintering sites. Clean cultivation helps reduce populations, while use of mulches and reduced tillage favors squash bug survival. Certain winter squash (Hubbard or marrow) are favored by bugs over other cucurbits. Adults colonizing the field in the spring can be controlled by planting a perimeter trap crop (Hubbard or marrow) 1 or 2 weeks before the main crop, and treating the trap crop just prior to main crop emergence or prior to transplanting, and 5 to 10 days later.

- Source material from Beth Bishop, MI state university. Adapted by Andy Cavanagh, UMass extension.

THREE LINED POTATO BEETLE

Potato, tomato, and sometimes eggplant are attacked by the three-lined potato beetle, Lema trilinea. Adults and larvae chew irregularly shaped holes in the leaves, feeding along the margin of the leaf or in the central area, and occasionally may devour all leaf tissue except the mid-vein. Larvae generally feed on the lower surface, but may feed anywhere on the plant.

Overwintered beetles emerge in early spring and feed on solanaceous weeds, migrating to eggplant, potato, and tomato plants when they are available. Females deposit eggs in clusters of 6–10 on the undersides of leaves. Eggs hatch in about two weeks and young larvae feed at first in a row side by side, beginning at the edge of the leaf and moving backward as they devour the tissue. Older larvae separate, migrate throughout the plant, and feed individually. Larvae become full grown in about two weeks. There are two generations each year.

The adult is 1/4 inch long with a reddish-yellow head and thorax. The thorax is constricted at the middle and marked with two black spots. The wing covers are reddish-yellow and marked with three black longitudinal stripes, one along each outer margin and

one in the center. The eyes and antennae are black, the legs are reddish-yellow, and the feet are black. Adults are extremely active, flying readily when approached or feigning death by tumbling off the plant to the ground if threatened. Eggs are about 1/25 inch long, smooth, oval, and yellow in color, turning dark just before hatching. Mature larvae are 1/3 inch long with a black head, thorax and legs, and a pale yellowish or grayish body. The body of the larva is kept moist and sticky by a secretion and the back of the larva is usually covered with a coating of its own excrement.

One of the interesting (in a disgusting sort of way) thing about these beetles is that they defend themselves against predators by covering their backs in their own excrement. Potatoes are in the nightshade family (along with tomatos and other solonaceous crops). Many plants in this family have toxic compounds in their foliage that deter most animals from feeding on their leaves. When the beetle larvae eat nightshade leaves they absorb the useful nutrients and excrete the toxins, which are concentrated in their excrement, or frass. The larva forms a fecal shield by excreting waste through its anus, located in the middle of its back. Muscular contractions continually move the frass higher onto the larva's back until it's fully covered. This fecal shield contains the chemicals that the plant was using to defend itself from being eaten, and now these chemicals serve to deter predators from eating the beetle larvae - as if being covered in your own poop wasn't enough of a deterrent.

- source material from Gerald M. Ghidiu, Ph.D., Extension Specialist in Vegetable Entomology, Rutgers University, NJ Agricultural Experiment Station. Adapted and expanded by Andy Cavanagh, UMass Extension

TOMATO DISEASES

The most common diseases of tomato in Massachusetts in recent years have been Early blight, Septoria leaf spot, and bacterial canker. Phytophthora diseases, including Late Blight (P. infestans), causing Buck-eye rot on fruit have occurred sporadically in wet years. Other bacterial, fungal, and viral diseases can appear, particularly in greenhouse or high tunnels including Bacterial Pith Necrosis, Bacterial Leaf and Fruit spots, Fulvia Leaf Spot, and Tomato Spotted Wilt Virus (TSWV). See the new Photo ID Supplement for excellent photos of disease symptoms of fruit and leaves of tomato!

Growers should be scouting their fields regularly for disease and should be on a regular fungicide spray schedule ranging from 7-14 days, depending on weather conditions. Conditions that favor disease are long leaf wetness periods, high humidity, and warm temperatures. Use the higher rate and shortest spray interval when environmental conditions favor disease development. Use copper products when bacterial disease is present.

Bacterial Canker (Clavibacter michiganensis pv. michiganensiss): Secondary infections are most commonly found in field tomatoes and typically occur in midseason-July or August. The foliar blight phase results from bacteria that entered the plant from the leaf surface or from infections that occurred in the greenhouse and went undetected. The latent period from infection of tissue to evidence of symptoms is 3-6 weeks.

Identification: Leaflet margins are dry and brown, with a border of yellow between the necrotic and healthy tissue. This "marginal scorch" often begins on lower leaves, spreading upward, but may begin anywhere on the plant. Leaf curling, wilting of leaves and branches, leaf yellowing, and shriveling of leaf tissue may occur. Symptoms may develop on only one side of a leaf or plant. As the disease develops, the vascular tissue becomes darker and the pith may be damaged. The pathogen becomes systemic and causes poor growth, wilt, and the plant stems and/or branches split resulting in cankers. Infected fruit show "bird's-eye" spot, small spots with brown centers surrounded by a white halo. Primary infections may also occur.

Recommended Action: Applications of copper, copper-maneb mix, or copper-maneb-chlorothalonil mix are recommended when the disease first appears, and at 7-10 day intervals thereafter. Work in fields only when dry to prevent disease spread and work in non-infected areas first. Use new wooden stakes or steam or treat stakes with chlorine. Periodically and regularly sanitize tools such as clippers and pruning shears. Bury debris with deep disking after harvest; rotate tomato fields. Do not use airblast sprayers, which spread the disease across the rows. Prevention is the most important management tactic: start with disease-free seed, plant resistant varieties, don't plant infected transplant, and don't plant in field where there is a history of bacterial canker.

Early Blight

Early blight (Alternaria solani) is the most common and widespread foliar disease of field grown tomatoes in New England and this disease is appearing on early, susceptible varieties. Contrary to what the name suggests, this fungal disease normally appears in mid to late July, as plants develop a full load of ripening fruit, and it is not until mid to late August that we see rapid expansion of the disease throughout the foliage. Uncontrolled, early blight can completely defoliate tomato plants and shorten the harvest period. In four years of field trials at University of Massachusetts, yield was reduced by 9% to 52% in unsprayed plots as a result of defoliation from early blight. However, unsprayed staked tomatoes developed less blight than ground tomatoes – a result that has also been found in NJ and VT.

Identification: Lesions occur on the older foliage first, and work their way up the plant. Infection results in characteristic brown, circular lesions with dark concentric rings like a target board. As disease progresses, whole leaves turn yellow, then brown.

Recommended action: Applications of strobilurin fungicides (Quadris, Cabrio), chlorothalonil, maneb, or copper should begin the first week of July should be made at 7-14 day intervals depending on weather conditions; or at intervals of 15 DSV's if the disease forecasting from TOM-CAST is available.

Septoria Leaf Spot

Septoria leaf spot (Septoria lycopersici) is less common that early blight but can be very fast moving and destructive when present, resulting in significant yield losses. The timing and development of the disease is similar to that of early blight.

Identification: Infection begins on the lower leaves with small circular spots that have tan to gray centers and dark brown margins. At the center of the lesions, black pinhead-sized pycnidia can be seen (visible with the naked eye, and even more apparent with a hand lens), which distinguish this disease from early blight. Lesions tend to remain small, up to 1/8 inch in diameter. Infection, and subsequent defoliation of the plant, spreads from the oldest leaves toward new growth, and can progress even more rapidly than early blight.

Recommended Action: Same as for early blight, except that manzate and mancozeb do not give adequate control of Septoria blight.

Phytophthora Diseases

Several soil-borne species of Phytophthora can cause diseases on tomato including P. capsici, P. infestans, P. parasitica, and P. drechsleri. Disease can occur as seed decay, seedling damping-off, root rot, and most commonly, fruit rot. Phytophthora fruit disease is called Buck-eye Rot and almost always occurs on fruit in contact with the soil. Spots grow into large, circular, firm lesions characterized by concentric rings of alternating light and dark brown discoloration. Lesions can cover more than half of the fruit. Phytophthora diseases are spread by water and the movement of infested soil. Plant tomatoes in fields that drain well, avoid planting low areas, avoid plastic mulches, and prepare soil such that drainage is enhanced. Scout fields for symptoms on a regular basis, especially after a heavy rainfall. If a small area is infected, disk under infected plants and adjacent healthy appearing border plants. Protect uninfected fruit with copper based products, dimethomorph, mefenoxam, phosphates, and/or Gavel (zoxamide plus mancozeb).

-edited by Bess Dicklow, UMass

SWEET CORN HERBICIDE, ZONE TILLAGE, & PRE-SIDEDRESS NITRATE TEST DEMONSTRATION AND FIELD DAY.

Wednesday, July 9 2008. Cornell Valatie Research Farm, Valatie, NY

Come join Cornell's Vegetable Weed Specialist Robin Bellinder, Cornell Vegetable Specialist Steve Reiners and the CCapital District Vegetable Program for it's annual weeds day at the Valatie Research Farm. For more details, please see http://www.umassvegetable.org/ed_programs/meetings/summermeetings.html

VEGETABLE NOTES WOULD LIKE TO THANK THE FOLLOWING COMPANIES FOR THEIR SPONSORSHIP:

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.