UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

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CROP CONDITIONS

The weather continues to be mostly dry and sunny. This is a pleasant relief from excessive rain that we experienced for much of the summer. The fallout from that rain is still showing up in fields, some of which continue to be lost to Phytophthora crown and fruit rot, which spreads rapidly once it gets established in any part of the field. Getting any ripe fruit out of the field as soon as possible is a good idea at this point, particularly in fields where Phytophthora may be present. Downy mildew is also taking down some cucurbit fields, though the dry weather helps to slow the progress of the disease. Late blight is also slowed by the sunny dry weather, though we are starting to see control break down in some tomato crops. The heavy morning fog and dew experienced in many areas of the state may provide enough hours of leaf wetness for these diseases to take hold despite the gennerally sunny weather. Corn earworm trap counts remain high. Pumpkins and winter squash are starting to hit the market, Brassica crops are growing well, and we can all hope for a long and bountiful Indian Summer.

PUMPKIN AND WINTER SQUASH HARVEST AND STORAGE

Although there are many fields with immature fruit, pumpkins in some fields are orange. Sugar pumpkins, especially, are ready early. Butternut in some fields is showing the dull, waxy look and tawny skin that characterizes mature fruit. Assessing maturity is complex in some winter squash that turns dark green before it is mature (see last weeks article on winter squash harvest period & eating quality).

Winter squash and pumpkin fruit sitting in the field face a daunting list of diseases and insects – not to mention possible passing hurricanes -- that could threaten fruit quality. Early harvest and careful storage is often preferable to leaving fruit in the field. This is especially true if you know that your pumpkins or squash are in fields that are infected with Phytophthora blight.

Since the pumpkin market lasts from Labor Day to Halloween, pumpkins may need to be held for several weeks before they can be marketed. When is it best to bring then in, and when to leave them in the field? If the vines are in good condition, the foliage can protect the fruit from sunscald. If foliage is going down from powdery mildew or downy mildew, this may help with ripening and make harvesting easier, but also increases the risk of sunscald or injury to pumpkin handles. There can be extra work involved in bringing fruit in early, especially for growers who normally have pick-your-own harvest, but we recommend that growers harvest as soon as crops are mature and store under proper conditions, if it is feasible. Attention to curing and handling will go a long way toward improving the life of winter squash and pumpkin fruit. If you need to hold fruit in the field for pick your own or any other reason, using a protectant fungicide (e.g. chlorothalonil) can help protect from black rot, powdery mildew and some of the other fruit rots.

What about pumpkin stems, i.e., handles? In some cases, it's the handle that sells the pumpkin. Pumpkins may not be marketable if the handle is broken off or dried up. Ideally, if the timing is right, pumpkins would be cut one to two weeks prior to marketing. However, if they are harvested now they may sit much longer before being sold. The discussion of how early to cut handles is an old one with many different opinions. One view is that it is advisable to cut the handles

from the vine to save them from advancing powdery mildew and reduce shrinkage. Whether or not handles shrink and shrivel after cutting is affected by plant stress, genetics (variety), moisture and temperature conditions, and disease. There are many diseases that can affect handles, including Plectosporium, Fusarium, Black Rot, and Alternaria. Again, proper curing and storage conditions are key.

Ideally, pumpkins should be harvested when fully mature, with a deep orange color and hardened rind. However, as long as pumpkins have started to turn color, they will ripen off the vine if held under the proper conditions. While not ideal, this may be preferable to leaving them in the field if conditions are not favorable. If necessary, pumpkins can be ripened in a well-ventilated barn or greenhouse. The best temperatures for ripening are 80-85 degrees Fahrenheit with a relative humidity of 80-85%. Night temperatures should not drop below the sixties. Even if pumpkins are ripe, a period of curing can improve storage life. The curing period should be about 10 days. During this process, the fruit skin hardens, wounds heal and immature fruit ripens – all of which prolongs the storage life.

Pumpkins should be stored in a cool, dry place. Ideal temperatures are between 50° and 60° F and relative humidity of 50 - 70%. Higher humidity allows condensation on the fruit with risk of disease, and lower humidity can cause dehydration. Higher temperatures increase respiration and can cause weight loss. Temperatures lower than 50 F cause chilling injury (see squash, below). In a greenhouse, temperature can be managed with ventilation on sunny days. Unless it is quite cool, heat is not likely to be needed if the house is closed up at night.

Often it is not feasible to harvest pumpkins early and store them until they can be marketed, and so they must be 'stored' in the field. If vines and fruit are healthy, storage in the field can be successful for a few weeks. If the vines die back, damage to the fruit from sun, disease and insects is more likely. In any case, it is important to scout for insects feeding on the fruit and handles, which may include squash bug nymphs or adults, or striped cucumber beetle. Control them if damage is evident. In fields that have a history of Phytophthora blight, Fusarium fruit rot, or black rot, field storage may increase the incidence of these problems, particularly if we have a period of wet weather or a major storm while fruit is sitting in the field. This has been one of the causes of significant losses in recent years, and one reason that we recommend bringing fruit in as soon as it is mature.

Growers often plan to store winter squash for much longer than eight weeks. Fruit that are free from disease and haven't been subject to much chilling (below 50°F) should be selected for long-term storage. Fruit from fields where Phythophthora is present are not the best choice for storage.

Storage life depends on the condition of the crop when it comes in and your ability to provide careful handling and a proper storage environment. All fruit placed in storage should be free of disease, decay, insects, and unhealed wounds. When harvesting squash and pumpkins, it is important to handle the fruit with care to avoid bruising or cutting the skin. Despite its tough appearance, squash and pumpkin fruit are easily damaged. The rind is the fruit's only source of protection. Once that rind is bruised or punctured, decay organisms will invade and quickly break it down. Place fruit gently in containers and move bins on pallets. Use gloves to protect both the fruit and the workers. Removal of the stem from squash (butternut, Hubbard, etc.) will also decrease the amount of fruit spoilage because the stems frequently puncture adjacent fruit, facilitating infection.

A period of curing after harvest can help extend storage life of squash. This may be done in windrows in the field -- especially with a series of warm, dry days -- or by placing squash in a warm dry atmosphere (70-80°F) with good air circulation, such as a greenhouse, for up to two weeks. This pre-storage treatment permits rapid drying of the outer cell layers, and when combined with a dry atmosphere for storage inhibits infections that can take place at this time. Any clean cuts during harvest are likely to heal over and are no longer a source for injury or infection.

Take care to avoid subjecting squash to chilling injury. Chilling hours accumulate when squash or pumpkin is exposed to temperatures below 50°F in the field or in storage. Injury increases as temperature decreases and/or length of chilling time increases. Chilling injury is of particular concern with squash intended for storage because it increases the likelihood of breakdown. If squash has been exposed to chilling injury it should be marketed first and not selected for long-term storage. Remove squash from the field if temperatures likely to drop below fifty degrees for any length of time.

After curing, move squash or pumpkins to a dry, well-ventilated storage area. Pressure bruises can also reduce storage life, so avoid rough handling, tight packing, or piling fruit too high. Fruit temperature should be kept as close to the temperature of the air as possible to avoid condensation, which can lead to rot. Ideally, the storage environment should be kept at

55-60°F with a relative humidity of 50-70%. Lower relative humidity increases water loss, resulting in reduced weight, and if excessive, shriveling of fruit. High relative humidity provides a favorable environment for fungal and bacterial decay organisms. Under ideal conditions, disease-free pumpkins should have a storage life of 8-12 weeks and butternut squash up to three or four months. Even if it is difficult to provide the ideal conditions, storage in a shady, dry location, with fruit off the ground or the floor, is preferable to leaving fruit out in the field.

As you plan for storage and marketing, keep in mind that the market for pumpkins seems to get earlier every year. Fall decorative displays include pumpkins, and those displays begin showing up as Labor Day approaches. One of the best solutions to early-maturing pumpkins may be finding an early market.

--R. Hazzard; many thanks to the following sources: J. Howell, A. Carter, and Robert Wick. University of Massachusetts; Dale Riggs & Robert Rouse, Pumpkin Production Guide, NRAES; Maurice Ogutu, University of Illinois Extension, in Vegetable Growers News, August 2004; and Liz Maynard, Purdue University; Andy Wyendandt, Rutgers University.

CROP ROTATION

Most of the disease, insect and weed problems you will have this season have already occurred and now in addition to maintaining your control of these you need to start thinking about next season. For many pests the severity of the problem next year will be the result of what you do this year. For insects and diseases the worst thing you can do is to give them a dependable food source year after year. The problem will likely get worse and worse. The most effective way to avoid this is by using crop rotation. Now is the time to decide where crop rotation will work to disrupt the dependable food source your insects and disease pathogens hope to find.

The effectiveness of crop rotation depends on the life history and biology of the particular pest. The three characteristics that play the biggest role are:

Dispersal Ability- How well and far can the pest move? If the pest can only move short distances then by rotating your crops to a new field you can leave them behind unable to reach food before they starve. On the other hand, if the pest typically moves long distances then moving your host crops will not make much difference. For example, the potato leaf hopper comes here all the way from the Gulf of Mexico region and so chances are that which field you decide to put your beans or potatoes in will not make much of a difference. In contrast, the Colorado potato beetle hibernates during the winter and essentially can only walk to potatoes when it wakes up in the spring. You do not have to move potatoes too far from last year's field to significantly reduce the numbers that find the new planting.

Host Specificity- How many different kinds of plants does the pest or disease affect? If the pest is very specific in what it lives on it is easier to choose an alternative crop to plant where the pest is overwintering. On the other hand, if the pest feeds on many crops (or weeds) then it is difficult to avoid a food source for it and it will probably be waiting for you no matter where you move your crop or how long you wait to plant it again. For example, the tarnished plant bug, which is a major pest on lettuce (browning of the midrib), strawberries (catfacing), eggplant (feeds on tiny buds and they drop) and broccoli (brown beads in head), also feeds on about 300 weeds and so really does not depend on your crops to survive. In contrast, the species that causes Septoria leaf spot on tomato can only survive on plants in the tomato family (tomato, eggplant, potato, petunia, black nightshade, etc) so it is not that hard to plan a successful crop rotation to leave it without a host to feed on.

Persistance - How long can the pest survive without a host? This is a critical question because some diseases can persist in some sort of resting spore for very long periods of time waiting for a host to appear again. Most insects need food every season or they starve and many diseases can only survive a year or two without a host. For example, the pathogen that causes late blight of potato and tomato can only survive on living tissue and so in New England it really only makes it from season to season on potato tubers. Proper handling of culls is the key to managing this disease. In contrast, the pathogen that causes white mold of beans, carrots, tomato, lettuce, etc. can form resting bodies called sclerotia that are able to just sit in the soil for many years without any host.

So, now is the time to look around the farm and see what you have for pests and learn which ones can be managed with crop rotation and then make plans. Crop rotation, in addition to a tool for pest management, is very important for managing nutrients in the soil and for controlling weeds.

--excerpted from the August 25, 2006 Pest Report by Eric Sideman of the Maine Organic Farmers and Gardeners Association, adapted and updated by A. Cavanagh

FALL WEED MANAGEMENT ADVICE

Weed management is still important at the end of the season. There are three main activities that need to be completed. They are: fall field scouting, preventing weed seed production, and controlling perennial weeds.

End of Year Weed Scouting

It is worthwhile to take the time to check fields for weed problems at this time of year. A quick scouting can identify problems that will be expensive to solve if they get out of control and can provide clues that will help in designing a weed management program for next year. Mapping weedy spots, and keeping some kind of permanent record of weed surveys, can help you evaluate your weed management over the years. Make a map of each field and fill in the following information:

How Many? How dense are the weeds? If weeds are very dense, they may be having an impact on yields. This is especially true if these weeds emerged early in the season, when competition is greatest. If weeds were actively growing during the period of greatest crop growth, consider changing the weed management program.

Which Weeds? Identifying weeds can help identify potential problems before they get out of hand, and can help you decide if you need to modify your weed control program. Weeds like yellow nutsedge, field bindweed, and quackgrass are spreading perennials, which have underground parts that enable them to spread throughout whole fields. Because these weeds can be very damaging, and are very difficult to control, they are worth "nipping in the bud". In addition, keep an eye out for annual weeds that are new to a field or are increasing in numbers. Some weeds can be very difficult to control in some or all of the crops in your rotation. Galinsoga, for example, is hard to control in cole crops, peppers, and squash. Nightshades are difficult to control in tomatoes for growers who rely on herbicides for control, because they are in the same family as tomatoes. Velvetleaf is hard to control in sweet corn.

What worked? It is also useful to look at the whole field and evaluate the effectiveness of your weed control efforts. If some weeds are generally escaping, identify them. They may point to weaknesses in your herbicide or cultivation program. If mostly grasses, or mostly broadleaves are escaping, it may require an adjustment of either the rates or the timing of grass or broadleaf herbicides. You may also find the New England Vegetable Management Guide useful. This manual contains a chart listing the effectiveness of vegetable herbicides on most of the common weeds in New England. Use this guide to find an herbicide labeled for your crop that might give better control than the one which was used.

Where are the weeds? Weeds in the rows or planting holes are much more damaging to crop yields than between-row weeds. Weeds in rows may be an indication that cultivation equipment needs adjustment, or cultivation needs to be done earlier.

Preventing Weed Seed Production

Annual weeds produce incredible amounts of seeds. Annual grasses normally produce 3000 to 5000 seeds per plant, small seeded annual weeds such as pigweed and lambsquarters can produce 100,000 to 250,000 seeds per plant, and larger-seeded broadleaf weeds such as velvetleaf and smartweed can produce 5,000 or more seeds per plant. Perennial weeds can also produce seeds or other reproductive structures. For example, one yellow nutsedge plant can produce 2000 tubers. Perennial weed management is covered below.

Once fields are harvested, they should be tilled or disked as soon as possible to prevent seeds from maturing. Be especially concerned with weeds that are new to a field or are in abundant supply. If time is short, one alternative is to mow the weeds. This will remove the primary seed stalk but will also encourage lateral branching. Eventually, however, these branches will produce seeds and must be destroyed.

Perennial weed management

The best time to control perennial weeds is in the Fall. All perennial weeds have storage structures (tap roots or rhizomes) below ground that enable these plants to survive the winter and regenerate themselves the following year. Fall tillage of

perennial weeds will kill top growth and fragment the storage organs but will not kill the weed. Frequent tillage will, over a long period of time, control perennial weeds but, in most cases, this is not practical.

Perhaps the best control technique for perennial weeds is an application of glyphosate (Roundup) before the plant goes dormant. Perennial broadleaf weeds such as bindweed or dandelion should be sprayed while they are still actively growing which is usually before a hard frost. Perennial grasses, such as quackgrass, can be sprayed as late as mid-November. Use 10 to 20 gallons of water per acre when spraying Roundup. Two quarts of the herbicide will provide much better control at 10 gallons of water per acre than at 40 gallons of water per acre. Spraying on a mild afternoon following a cold or cool morning is best to encourage translocation of the herbicide to the below-ground storage structures. Disking or tilling two weeks after application will also improve control of the weeds.

Many growers fight perennial weeds such as quackgrass in corn fields year after year because their primary goal in the Fall is to plant a cover crop. This is usually followed by a Spring application of Roundup which provides top kill but does not kill the whole weed. Applying Roundup at the proper time is the only way to achieve good control. Delaying the seeding of a cover crop may be a necessary evil in the fight against perennial weeds.

In conclusion remember to scout and map your fields, prevent weed seed production, and apply Roundup at the right time to control perennial weeds.

--Rich Bonanno, UMass Extension Weed Specialist

BRASSICAS: FALL DISEASES

We're all hoping for an extended Indian summer, but fall is on it's way. Fall with cooler temperatures and shorter days is the time when fall Brassica crops tend to look terrific. Fall is the easiest time to grow high quality broccoli. Flea beetles seem to evaporate (though they can sometimes be found in some fields in mid September), as they depart the field for overwintering sites in the border. Caterpillars grow more slowly, so that as long as you don't ignore them completely, they are easy to control. However, its worth keeping a close eye on these crops, especially by looking underneath the leaves. As usual, that is where you will be able to notice problems early, and avoid having them sneak up on you.

Alternaria Leaf Spot (ALS) is encouraged by heavy dews that kept leaves wet for long periods. At least three species of Alternaria can cause serious losses in Brassica crops. It occurs on many Brassica crops, including Brassica oleracea types (e.g. broccoli, cabbage, collard) and Brassica rapa types (e.g., bok choi, tatsoi, komatsuna) (see photos). These pathogens may be seed-borne, both as spores on the seed surface and as mycelium within the seed. However, the major source of inoculum is crop debris in soil.

Symptoms of ALS are circular, small, dark spots with concentric rings (target spots) on the upper surface of leaf. Older leaves are more susceptible to infection. When humidity is high, lesions can be covered with a sooty black mass of spores. The pathogen sporulates abundantly on foliar lesions and centers may fall out to give a 'shot-hole' appearance. Lesions can grow together leading to large necrotic areas and early leaf drop. Symptoms on cauliflower and broccoli heads begin as browning at the margins of individual flowers. ALS requires leaf wetness for 16 hours to initiate infection and at least 12 hours of continuous humidity at >90% RH to develop. Note that if ALS does not have the required amount of leaf wetness, it will appear as tiny black "sooty" dots (not as the characteristic target-spot lesions).

ALS can cause economical loss in storage if infection spreads into the upper frame leaves or head due to additional trim loss, the production of ethylene, and invasion by secondary fungi and bacteria.

Because inoculum carries over in crop residue, crop debris should be destroyed as soon as possible after harvest and a minimum 3- year rotation out of crucifers should be used. For rotation to be effective, cruciferous weeds need to be controlled during the rotational period. Buy seed from a reputable source or treat with hot water to eliminate Alternaria from seed. Eliminate cull piles. Avoid overhead irrigation during head development. For current chemical recommendations, see the New England Vegetable Management Guide – available online at www.nevegetable.org.

Powdery mildew of Brassicas. This disease is unusual in the US, but is reported to occur regularly in England and southern Ontario, among other locations, especially on rutabagas and turnips. The disease is unusual in New England, but it

does occur. Brussels sprouts, kale, Chinese cabbage, collards, broccoli, mustard and cauliflower are also reported to be hosts. Just as you would expect, the symptoms are white talcum-like growth on the upper leaf surface, starting as circular patches and expanding to cover the leaf. Leaves become pale green to yellow or tan, or if severely infected, curl and die. The plant is rarely killed, but growth can be stunted or defoliated, and of course is the leaves are sold, the disease would render them unmarketable. Note that this is a different species of powdery mildew than those that infect cucurbits, or tomato, or various ornamental crops.

Conditions that favor this disease seem to be low relative humidity with cool temperatures, water stress of the crop, and the availability of a thin film of moisture in which spores can germinate. The white powdery growth includes mycelium and spores (conidia), which can be dispersed quite long distances by wind. Spores overwinter "with difficulty"; however, survival of the fungus is better when live plant material carries over through the winter, which enables the fungus to produce new spores in the spring. It seems possible that we may see this disease more often if we start to have consistently milder winters which allow survival of Brassicas, and because growers are overwintering Brassica plants through protection with row covers. If you see powdery mildew in the fall, don't ovewinter those Brassicas!

Fungicides which are labeled for fungal diseases of Brassicas, especially those which also work against powdery mildew in other crops, should provide control of the disease. Apply at first indication of disease. Put crop residue under as soon as possible after harvest, and control Brassica weeds which could also harbor the disease.

Downy mildew of Brassicas. This disease should not be confused with downy mildew of cucurbits, which is related but does not infect Brassica crops. Downy mildews tend to be specific to a certain plant family or even species within a plant family. They are in the same group of fungi (Oomycetes or 'water molds') that cause late blight of potato and tomato and blue mold of tobacco.

Downy mildew is an important disease of broccoli, collards, kale, cabbage, cauliflower and Brussels sprouts. It can also infect rutabaga, turnip and radish. It is encouraged by cool, moist conditions (from rain, heavy dew or fog), which are more typical in late August, September and October in our region. Infection can occur at any stage of growth. Severe infections can kill seedlings, but stem, leaf and flower/head infections can cause crop injury and loss at later stages.

The most distinctive symptom is grayish white, fluffy growth on the undersides of leaves. Irregular, angular yellow to brown spots develop on both top and bottom of the leaf. In the floral parts of broccoli or cauliflower, dark brown areas develop internally in curds or floral buds of the head. Stems and stalks of the flower head may be darkened or have black streaks, and this may be the first sign of infection in broccoli. In cabbage, internal darkening and purplish spots appear in the inner layers of the head or move upward in the head from stem infections. Secondary infection with soft rot bacteria (always smelly!) may follow the downy mildew. In cabbage, systemic invasion of the stem may occur after infection of the lower leaves. The fungus may then invade the head leaves and sporulate after the cabbage has been stored.

The fungus survives from season to season as thick-walled resting spores, called ospores. These sexual spores can survive in the soil for extended periods and produce sporangia when conditions are moist and cool, especially at night. Disease development is favored by abundant moisture on leaves provided by dew, drizzling rain, or heavy fog. Sporulation, germination, and reinfection can occur in four to five days. The fungus may also survive in a latent state within systemically infected plants. Oospores and mycelium can be carried in and upon seed. Sporangia are carried on air currents and on wind-blown rain and when conditions are right, will germinate on leaves and produce new infections.

Cultural controls for downy mildew: Rotation out of Brassicas for at least two years; removal of crop residues which contain Oospores (may not be practical!); adequate crop spacing to encourage drying of leaves. Control in the seed-bed is very important and includes the use of clean growing medium, good drainage, and an avoidance of overhead irrigation. Resistant or tolerant varieties of broccoli have been developed; our sources list Marathon and Arcadia among these.

For current fungicide recommendations, please see the New England Vegetable Management Guide. Preventive spraying of protectant foliar fungicides may be necessary if environmental conditions favor disease development. For organic growers, potassium bicarbonate can be effective if applied at the first sign of disease and continue at 7-14 day intervals while conditions remain favorable for disease development.

Phoma leaf spot and stem canker (Blackleg). Blackleg attacks many cruciferous crops, especially cauliflower, broccoli, and turnip. Rutabaga, radish, and mustard cultivars are only slightly susceptible. This disease can spread rapidly within

a field. Though it is favored by wet conditions, it may spread on seedlings in the greenhouse and cause problems even in dry, sandy fields.

Plants can become infected at the seedling stage or at any stage in the field. The initial source is probably infected seed. The disease has become less important in brassica crops because of successful disease management strategies in seed production. Once present on the farm, management should focus on avoiding spread of the disease, and rotating out of the infected field for four years to eliminate the inoculum. Rogue diseased plants from seedbeds. Improve soil drainage and air circulation. Control cruciferous weeds. Incorporate crop debris promptly after harvest to hasten decay. Avoid working in the fields when wet.

Symptoms of the pathogen start as slight lesions on stems at cotyledon stage which elongate, turn brown with a black to purplish border, and become sunken. The lesion extends up and down the stem, the stem becomes girdled and blackened, with many fruiting bodies (pycnidia) embedded in the tissue. Lesions may extend below the soil and attack roots. Diseased plants often wilt, lodge, and die. On root crops, symptoms occur in the form of cankers on the fleshy roots and a dry rot may appear in storage. *Phoma lingam* can survive for up to four years in seed and three years in infected crop debris. The pathogen infects seedlings, forms pycnidia, and produces abundant amounts of spores which exude from the pycnidia in long coils and are splashed to nearby plants to initiate new infections. The disease is favored by wet, rainy weather. Start with seed certified as disease-free or treat seeds with hot water.

-R Hazzard, Bess Dicklow, A. Cavanagh.

SWEET CORN REPORT

The sweet corn season is almost over for the majority of growers in New England. Fields are plowed and cover crops are in. Any late season corn that is out there is still in danger of infestation from corn earworm and fall armyworm.

The European corn borer flight appears to be over for the season but remember that the moths overwinter in crop debris so chop up your stalks to get a head start on control for next year.

Corn earworm counts are still high in many locations this week, probably as a result of storm fronts continuing to move into the area from the south. Trap counts show earworm is still a threat to late corn, with a high of 81 moths caught in a week in the east, while trap counts in the valley seem to be dropping off except in Whatley where trap counts were at 98. Since most growers are within a week of picking their latest corn, the last spray for corn earworm has already been made. For sweet corn that you expect to pick in late September or early October, continue corn earworm sprays, but extend the spray intervals by one or two days, to adjust for lower temperatures. That interval may be lengthened if the maximum temperatures are 80 degrees

Pepper Trap Counts

Location	Z1	EII	Total ECB
CT Valley			
Hadley	0	31	31
Deerfield	2	24	26

Sweet Corn Trap Counts

Location	Z1	EII	Total ECB	AVG CEW	FAW AVG
CT Valley					
South Deerfield	0	0	0		
Deerfield					
Deerfield (2)	0	0	0	-	-
Sunderland (1)	0	2	2	-	-
Sunderland (2)	0	1	1	51	0
Hadley (1)	-	-	-	3	-
Hadley (2)	0	1	1	-	-
Granby	0	0	0	-	-
Whately	0	1	1	98	-
Easthampton	0	0	0	13	
Berkshire County					
Sheffield	4	1	5	5	
Central & Eastern MA					
Lancaster	0	0	0	36	0
Tyngsboro	1	0	1	81	1
Concord	0	0	0	45	0
Northbridge	0	0	0	61	4
Spencer	0	0	0	64	0
Dracut	0	0	0	17	0

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

F or below for two or three days. Cool night temperatures reduce moth activity, flights will continue to decline, and insect hatch and growth will slow down.

Fall Armyworm counts are lower this week but as many growers are finding damage despite low trap counts, it is good to continue scouting, especially in later plantings. If you still have corn that is pre-silk you may want to do a scout for new FAW damage and spot treat any infested areas. Damage is easy to spot, with ragged feeding and holes in the leaves and a lot of frass in the tassel or in the silks if the caterpillars have moved down the stalk. You can look at the Sweet Corn IPM Scouting Guide online at http://www.umassvegetable.org/SweetCornIPMScoutingGuide.htm, for more information on scouting and color pictures of the caterpillars and feeding damage.

- A. Brown & C. Huffman

UPCOMING MEETINGS

Thurs Sep 17. Biological Control for Ornamentals in Greenhouses – Putting it all together. Tolland County Extension Center, Vernon, CT. 9:30am-3:30pm. For info, see http://www.umass.edu/umext/floriculture/upcoming_events/index.html.

Mon Dec 14. GAP Training for Vegetable Growers. Center of New Hampshire Radisson, Manchester NH. 1:00 pm-5:30 pm. This meeting will introduce the basics of USDA/FDA's GAP (Good Agricultural Practices) Certification Program for whole¬sale fruit and vegetable growers. For info, contact Shirley Mietlicki-Floyd at 413-545-4420 or mietlicki@umext.umass.edu or Becky Grube at 603-862-3203 or becky.grube@unh.edu.

Tues-Thurs Dec 15-17. New England Vegetable and Fruit Conference. Center of New Hampshire Radisson, Manchester, NH. Three days of informative sessions and farmer-to-farmer networking! More details to come. Mark your calendars now! Get the latest info at http://www.newenglandvfc.org/.

If you would like to become a Vegetable notes sponsor, please contact Jessica Dizek at jdizek@outreach.umass.edu or 413 545 1445

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.