UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

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Crop conditions

Growers are in better shape after the rain we had earlier this week. Most growers spent the last week or so scrambling to get irrigation lines out to fields that were in great need water. The cool temperatures that came before the rain slowed down growth on some of the warm weather crops such as peppers, summer squash and zucchini. Even so early plantings of summer squash and zucchini are being harvested and peppers are close behind. Fruit set is good on peppers and eggplants. Tomato fruit loads are growing, and early field cherry tomatoes are starting to ripen. Harvesting of greens, beets, and parsley are continuing. Corn harvesting is happening but at a slow rate. Some growers have started to hand pick ripe ears to sell at their farm stands in anticipation for a larger harvest by the end of the week and into early next week.

Using the Pre-Sidedress Nitrate Test is helping growers to decide which fields need more nitrogen, how much, and when. Insect pressure is changing. While corn pests such as European corn borer are at a low for the moment, and some other pests that have a midsummer gap between generations are also at lower levels, we are seeing the arrival of mid summer migratory pests such as potato leafhopper and (very sporadically) fall armyworm. Watch for Mexican bean beetle, Japanese beetle, sap beetle, tarnished plant bug, spotted cucumber beetle. Summer emergence (a new generation) of flea beetles, Colorado potato beetles, striped cucumber beetle (whose pupae have been underground) can be expected to start within the next couple of weeks.

We hope to see you at the IPM Field School on July 24, Foppema Farm in Northbridge, MA. See flyer enclosed or consult our website, www.umassvegetable.org/ for more information.

Downy mildew update: July 5, 2007

A potentially devastating Downy Mildew epidemic has been reported in northern Ohio and University of Ohio vegetable specialists are asking growers to take measures now to prevent heavy damage. A nearly simultaneous outbreak of Downy Mildew has been reported in upstate New York. These outbreaks follow reports of the disease in southwestern Ontario (Canada) in early June and in Michigan in late June. All Michigan cucumber growers are being urged to begin protective fungicide sprays immediately and repeat them at 5-7 days. Squash, pumpkin, melons, and gourds may be sprayed on a 7-10 day schedule.

The current forecast calls for **High** risk to cucurbits in northern Ohio, southern Ontario, and western and northern New York, and a strongly moderate risk to cucurbits in northern New Hampshire, northern Vermont, and southern Quebec. **Low** risk to cucurbits otherwise (including Massachusetts). Forecasts are based upon prevailing winds and atmospheric conditions. See www.ces.ncsu.edu/depts/pp/cucurbit/forecasts/

-Bess Dicklow, UMass Extension

Update on potato:

Potato leafhoppper numbers are high this season, and we are seeing nymphs as well as adults in both beans and potatoes. If nymphs are building up, injury to the plant has probably already occurred and will become evident as scorching of the leaf edge and general decline of the plant, in potato, or a general bronzing of leaves in green beans. The earlier in plant growth that the leafhopper moves in, the more yield loss there will be. See *New England Vegetable Guide* for conventional products. Among products for certified organic production; Pyganic has shown the greatest efficacy.

Colorado potato beetle is completing the first generation, as large larvae are feeding. Soon these will drop to the soil to pupate and emerge about two weeks later as new adults. Clean these up now, preferably before they reach the last, largest stage of growth, so that you will not be battling a new generation of beetles in August.

Watch for potato aphids and for beneficials. It seems to be an active aphid year.

Update on brassicas:

A new generation of cabbage butterflies has been very active this past week, and we have observed several fields where Brassica plants are loaded up with new eggs and tiny caterpillars. Scout to find out if this is true in your field so that controls can be applied before larvae grow large enough to cause significant damage. Eggs are light green or slightly yellow, standing on end, glued to the leaf, and may be on top or underneath the leaf. We have seen low numbers of Diamondback moth as well, but no loopers yet.

Early blight of tomato and potato -update 2007

Early blight caused by *Alternaria solani* occurs wherever potatoes and tomatoes are grown. Uncontrolled, the disease may cause serious defoliation, resulting in decreased yield and quality. *A .solani* survives between crops on infected plant debris,

soil, other solanaceous host weeds and can be carried on tomato seed and infected tubers. The fungus enters the leaves directly or through wounds. Primary infection can occur on older foliage early in the season, but most secondary spread occurs as the plants age. Actively growing, young tissue and vigorous plants with adequate nitrogen generally do not express symptoms. Infection is favored by mild, rainy weather.

Early blight occurs on the foliage, stem, and fruit of tomato. It first appears as small brown to black lesions on older foliage. The tissue surrounding the initial lesion may become yellow, and when lesions are numerous entire leaves may become chlorotic. As the lesions enlarge, they often develop concentric rings giving them a 'bull's eye' or 'target-spot' appearance. In the late summer when conditions are favorable for disease development, lesions can become numerous and plants defoliated, reducing both fruit quantity and quality. Fruit can become infected either in the green or ripe stage through the stem attachment. Lesions can become quite large, involve the whole fruit, and have characteristic concentric rings. Infected fruit often drop and losses of 30-50% of immature fruit may occur. Foliar symptoms on potato are quite similar, though defoliation rarely results. Tuber lesions are dark, sunken, and circular often bordered by a purple to gray raised tissue. The underlying flesh is dry, leathery, and brown. Lesions can increase in size during storage and tubers become shriveled.

Use resistant or tolerant cultivars. Start with disease-free seed, transplants, and seed tubers. Use long crop rotations, eradicate weeds, and eliminate volunteer plants and cull piles. Plow under plant debris after harvest. Fertilize properly and keep plants growing vigorously. Handle seed tubers carefully to prevent wounding. Permit tubers to mature in the ground before harvesting and avoid bruising when handling. Spray regularly with fungicides. Spray applications should be scheduled by spore trapping or forecasting systems (TOM-CAST) to be most effective. Early season applications often fail to control secondary spread of the disease.

Chemical recommendations:

azoxystrobin (Quadris): 0 dh, REI 4 h. Do not apply more than two sequential applications before alternating with a fungicide with a different mode of action.

chlorothalonil (Bravo Ultrex 82 WDG): 0 dh, REI 12 h. Good rotation partner for Quadris.

dimethomorph plus mancozeb (Acrobat MZ): 14 dh, REI 24. Do not make more than five applications per season.

maneb/mancozeb (Maneb, Penncozeb, Manzate, Dithane): 3 dh, REI 24 h.

pyraclostrobin (Cabrio EG): 0 dh, REI 12. Do not apply more than 6 applications per season or rotate with Quadris.

Bess Dicklow, UMass Extension

BACTERIAL DISEASES OF CUCURBIT CROPS-2007 UPDATE

Cucurbits are subject to three diseases caused by bacteria-Angular Leaf Spot (*Pseudomonas syringae* pv. *lachrymans*), Bacterial Spot (*Xanthomonas campestris* pv. *cucurbitae*), and Bacterial Wilt (*Erwinia tracheiphila*). Angular leaf spot and Bacterial spot are diseases of the foliage and fruit; their symptoms are similar and easily confused with each other and with those of Downy mildew. Bacterial wilt is a systemic disease of the vascular (water-conducting) system of the plants and is vectored by the striped cucumber beetle. Management of this disease is dependent upon control of the insect vector.

Angular leaf spot (ALS) is the most widespread bacterial disease of cucurbits, occurs worldwide on a wide variety of hosts, and is most serious in warm, humid weather or regions. Symptoms first appear as small, water-soaked lesions which expand until they are limited by secondary veins, often accompanied by a clear to milky exudate. Lesions dry, turn brown, may fall out giving leaves a tattered appearance or be surrounded by yellow margins. The bacteria can also infect petioles, stems, and fruit and the exudate may be present here. Fruit lesions can penetrate deeply causing an internal rot and allowing the invasion of secondary soft rot organisms. Symptoms of Bacterial leaf spot appear similar to those of ALS and the disease occurs sporadically on squash, cucumbers, gourds and pumpkins in temperate areas of the world. Severe outbreaks of this disease on jack-o-lantern pumpkins can result in total crop loss. Lesions can be overlooked because of their small size. Fruit lesions vary in size and appearance depending on rind maturity and the presence of moisture. Initial small, slightly sunken, beige lesions with a dark, brown halo can expand, become sunken, and cause the cuticle and epidermis to crack. Fruit rot in the field or in storage may be significant.

Both ALS (*P. syringae* pv. *lachrymans*) and Bacterial leaf spot (*X. campestris* pv. *cucurbitae*) are seed borne and can cause a cotyledon spot. ALS survives in infected crop residue and in dry leaves for up to three years. Very little is known about the biology of Bacterial leaf spot, although attempts to isolate it from the soil have been unsuccessful. Both diseases are spread within the field by splashing rain, windblown sand containing infested debris, insects, humans, and equipment. Spread is enhanced when the foliage is wet from rain, dew, or irrigation. Neither foliage disease is normally a serious threat to cucurbit production. The most effective method for control is planting certified, disease-free seed. Crop rotation is also helpful. Application of copper compounds in the early stages of fruit development may reduce symptomatic pumpkins. Copper applications after these diseases are well established are largely ineffective.

Bacterial wilt (*E. tracheiphila*) is a serious disease of cucumbers and muskmelons and is becoming more of a concern on other cucurbit crops. Initial symptoms consist of wilting of a few to several leaves, individual runners or stems, or throughout a plant's foliage. Wilting foliage becomes dark green, then yellows and dies. In advanced stages of the disease, entire plants collapse and die. Fruit infections can occur and appear as small, irregular water-soaked lesions. Wilt is most severe in young, succulent plants. Because this bacterium is transmitted by the cucumber beetle, copper sprays are of no value. The pathogen does not survive on seed, in the soil, or within the insect vector. It is thought that infected weed or volunteer cucurbit hosts are the original source of inoculum. Rotate cucurbits to reduce beetle numbers, rogue infected plants, or use Spunbonded row covers to exclude

beetles. Scout twice weekly at the seedling stage for cucumber beetles and start insecticide treatments at the threshold of one beetle per 100 feet of row. Plant a sprayed perimeter crop of Blue Hubbard squash to protect more susceptible crops. Resistant cultivars are being developed.

Insecticides:

azadiractin (Azatrol): OMRI
bifenthrin (Capture 2 EC): 2.6 to 3.4 oz/A (3 dh, REI 12 h).
carbaryl (Sevin XLR PLUS): 1 qt/a (3 dh, REI 12 h). Very toxic to bees and aphid natural enemies. Apply at night. Do not apply when foliage is wet.
endosulfan (Thionex 50 W): 1 to 2 lb/A (2 dh, REI 24 h). Toxic to bees; apply in the evening.
imidacloprid (Admire 2F): 1-1½ pt/A (21 dh, REI 12 h). Systemic insecticide applied in-furrow, banded, drench, or drip irrigation to seedling root zone. Do not apply as foliar spray.
kaolin (Surrond WP): 12 ½ to 25 lb/A (0 dh, REI 4 h). Suppression and repellence only. Use prior to flowering to avoid residue.
methomyl (Lannate SP): ½ to 1 lb/A (1 dh for ½ lb, 3 dh for > ½; REI 48 h).
permethrin (Ambush): 6.4 to 12.8 oz/A (0 dh, REI 12 h).
pyrethrin (PyGanic EC 5.0): 4.5 to 18 oz/A (0 dh, REI 12 h).
spinosad (Entrust) OMRI

-Bess Dicklow, UMass Extension

USDA REMINDS PRODUCERS OF CROP REPORTING DEADLINE

(HADLEY, MASSACHUSETTS), June 29, 2007 – Ted C. Smiarowksi, Jr., County Executive Director of USDA's Farm Service Agency in Hampshire, Hampden and Franklin Counties reminded producers not to forget to report what they've planted by July 16, 2007, to your local Farm Service Agency (FSA) office. Annual crop reporting is also referred to as acreage reporting or crop certification.

"Filing accurate and timely reports for crops and land uses, including failed and prevented planted acreages can prevent loss of benefits for many FSA programs," said Smiarowski. "All cropland included in your farming operation must be reported to receive benefits from a variety of USDA programs."

According to Smiarowski crop reporting is used by FSA to determine eligibility for commodity loans and Loan Deficiency Payments (LDP's), disaster programs and Non-insured Crop Disaster Assistance Program (NAP) and to verify compliance with highly erodible land and wetland (HELC/WC) provisions. Crop reporting is used in determining compliance with farm programs and in making various current and future program decisions, such as crop base history.

Smiarowski says some of the programs that use the crop reporting information include Direct and Counter-cyclical Program (DCP), Marketing Assistance Loans (MAL) and LDP's. Conservation Reserve Program (CRP/CREP) acreage must be reported to receive annual rental payments. And, crop acreage for NAP must also be reported.

Crop reports must account for all cropland on a farm, even if left idle. Producers are required to report planted acres in Hampshire, Hampden and Franklin counties by July 16th.

Smiarowski adds if natural disaster conditions prevented you from planting a crop during the normal planting period the prevented planted acreage must be reported no later than 15 calendar days after the final planting date for the crop. If your crop failed due to disaster related conditions, the failed acreage must be reported before disposition of the crop.

"If you miss the final crop reporting dates, you can file a late crop report if you pay a late-filed fee, the cost of a farm visit and the costs of verification of crop acreage," said Smiarowski.

Finally Smiarowski says if you are unsure of accurate acreages, you may want to consider measurement service prior to reporting your crops. FSA will measure acreage to determine the exact area designated for specific crop land or land use. Check with your local office for measurement service rates.

For more information on crop reporting or any FSA programs, contact your local FSA office; for the Hadley Service Center call (413) 585-1000 ext.2 or for the Greenfield Service Center call (413) 772-0384 ext. 2, or visit our web site: www.fsa.usda.gov

DOES SPRAYING FOR APHIDS CONTROL VIRUS? WHEN SHOULD I SPRAY FOR APHIDS?

At this point in the season, aphids are showing up in many crops, and growers are concerned about whether and when to spray. Many growers feel they must have a rigorous spraying program for aphids to protect their crops from virus diseases. All too often this practice is not effective in preventing the occurrence of virus diseases, but it is expensive and time consuming.

This article will briefly review some of the basics of how viruses are spread. Virus diseases require a living host, and when the host plant dies, any virus within the host plant cannot survive. (An exception is tomato/tobacco mosaic, which can survive in dead host tissue.) For the most part, viruses survive the winter in certain perennial weeds. During the growing season, viruses can be transmitted from perennials to a susceptible vegetable crop.

Most vegetable virus diseases that are important in New England are spread by insects (see Table 1). Cucumber beetles, thrips, leafhoppers, and nematodes can spread certain viruses, but aphids are the most important vectors (carriers). Viruses can be classified as persistent and nonpersistent. This is related to the manner in which they are spread by insects and is important in choosing an appropriate management strategy.

An insect must feed for a minimum of ten minutes to an hour to pick up a **persistent** virus from an infected host. The virus must then undergo a dormant period of at least 12 hours within the insect before it can be transmitted to another plant. Aphids will remain infective (able to vector a virus) for at least a week and maybe throughout their life. A good insect management program including pesticides can be very helpful in dealing with **persistent** virus diseases.

Aphids pick up **nonpersistent** viruses by merely probing (exploring) an infected leaf. This happens rapidly--within seconds

or minutes. A dormant period is not required and the aphid can immediately transmit the virus by probing another plant. Aphids remain infective with nonpersistent viruses for a short time (minutes).

Winged aphid stop on many types of plants and probe to determine if the plant is the 'right one' for them – if it is their host plant. If it does not 'taste right' they will fly away. During the few seconds it tastes the plant, any viruses that it is carrying can be transferred. No insecticide works fast enough to prevent this transmission. Insecticides do not prevent virus transmission in most vegetables and any application of insecticides to prevent viruses does more harm than good by killing natural enemies.

Systemic materials are generally the most effective insecticides available for aphid control. Systemic insecticides are taken into the plant and become present in the plant juices. Aphids feed by sucking juices from the plant, and when they do so they also ingest some of the insecticide. However, when probing a leaf an aphid is not feeding and does not ingest plant juices or insecticide. In fact, the presence of an insecticide may actually stimulate probing and cause aphids to move from plant to plant in an effort to fine a suitable feeding site. This can increase the spread of **nonpersistent viruses.**

Nonpersistent viruses are very difficult to manage. We have no pesticide that kills viruses and, as we have seen, insecticides may actually make matters worse. Eradication of perennial weeds around fields can reduce the source of the virus. The green peach aphid is not the only aphid that transmits viruses, but it is important because it is a universal vector. Prunus species (peaches, cherries etc) are attractive to green peach aphids. Removal of wild prunus such as wild cherry trees from around fields can make the area less attractive to green peach aphids.

Reflective mulch such as aluminum foil on paper has been used successfully to repel aphids and can be effective in reducing virus problems. However this material is expensive and tears easily when laying. Some of the light colored plastic mulches may be worth a try. Row covers such as Remay can keep aphids off a crop, but they are generally used during the cool days of spring whereas aphids are most active during warm weather.

Resistant varieties: The most effective way to reduce the incidence of viruses is to plant virus resistant varieties, wherever possible. Managing weeds in and around vegetable fields will also help reduce aphid populations.

Direct damage from aphids: Besides spreading virus diseases, aphids in high numbers can cause economic damage by their feeding activities. Leaf curling and yellowing or deposits of honeydew on leaves or fruit can affect crop quality or yield. For this reason it is important to manage aphids even if virus is not a concern. However, beneficial insects such as ladybeetles, lacewings, and parasitic wasps often keep numbers low enough to prevent direct damage. Beneficials move in shortly after aphids arrive, and bring the population down. Early sprays targeting aphids may actually result in further aphid outbreaks, because the natural enemies that keep them in check have been killed. Where possible, use selective insecticdes that have minimal impact on beneficials.

Scouting across the field gives you an estimate of current numbers. If aphids are present, check back in a few days to see if the numbers are increasing or decreasing. Note which natural enemies are present. Check undersides of leaves, including lower and mid level leaves. The following thresholds can be used to determine if insecticides are needed (sampling routine in parenthesis):

Pumpkin and winter squash: 20% of leaves have more than 10 aphids (based on 50 leaves).

Pepper: 10 per leaf (based on 4 leaves per plant, 25 plants).

Tomato: 6 per leaf (based on 2 leaves per plant, 25 plants).

Potato: 4 to 10 per leaf (based on 25-50 compound leaves; higher threshold near harvest).

Sweet corn: 50% of plants with >50 aphids at emerging tassel (based on 100 plants).

-Ruth Hazzard, John Howell, and Rob Wick, University of Mass., with except from Beth Bishop, Michigan State, June 20, 2007

TABLE 1: EXAMPLES OF VIRUS DISEASES THAT OCCUR IN MASSACHUSETTS

HOST/VIRUS VECTOR, OR OTHERWISE

PERSISTENT (P) OR NONPERSISTENT (N)

Beans
Bean Common Mosaic Virus (BCMV) Aphids, seed-borne N
Bean Yellow Mosaic Virus (BYMV) Aphids P
Tobacco Ring Spot Nematodes P
Tomato Ring Spot Virus Nematodes P

Cucurbits
Cucumber Mosaic Virus (CMV) Aphids, cucumber beetle N
Watermelon Mosaic Virus (WMV) Aphids N
Papaya Ringspot Virus (PRSV-W) Aphids N
Zucchini Yellow Mosaic Virus (ZYMV) Aphids N
Tobacco Ring Spot Nematodes P
Tomato Ring Spot Virus Nematodes P
Turnip Mosaic Virus Aphids N

Peppers
Cucumber Mosaic Virus (CMV) Aphids N
Tobacco & Tomato Mosaic Virus
(TMV, TomMV) Mechanical N
Tomato Spotted Wilt Virus (TSWV) Thrips P
Tobacco Ring Spot Nematodes P
Tomato Ring Spot Virus Nematodes P

Potato
Potato Leafroll Virus (PLRV) Aphids P
Potato Virus S (PVS) Aphids N
Potato Virus A (PVA) Aphids N
Potato Virus X (PVX) Aphids, mechanical N
Tobacco Ring Spot Virus Nematodes P
Tomato Ring Spot Virus Nematodes P
Tomato Ring Spot Virus Nematodes P

Corn
Maize Dwarf Mosaic Virus (MDMV) Aphids semi-persistent
Tobacco Ring Spot Nematodes P

Tomato
Cucumber Mosaic Virus (CMV) Aphids N
Tobacco & Tomato Mosaic Virus
(TMV, TomMV) Mechanical N

Tomato Spotted Wilt Virus (TSWV) Thrips P
Tobacco Ring Spot Nematodes P
Tomato Ring Spot Virus Nematodes P

Brassica (cabbage family)

Tobacco Ring Spot Nematodes P
Turnip Mosaic Virus Aphids N

Ornamentals

Tomato spotted wilt virus (TSWV) Thrips, cuttings P
Tobacco mosaic virus (TMV) Mechanical N
Cucumber mosaic virus (CMV) Aphids N
Tomato Ring Spot Virus Nematodes P

Fruits

Tomato ringspot virus (TMRSV) Nematodes, grafting
Tomato Ring Spot Virus Nematodes P

Table Prepared by: Dr. Robert Wick, Plant Pathologist, University of Massachusetts, Amherst

SAP BEETLES

Sap beetles are usually secondary pests of sweet corn usually associated with damage caused by other pests. Sap beetles overwinter as adults or pupae in crop refuse, decomposing corn ears, or decaying fruit on the ground. Eggs are laid in spring. There are several generations per year. They are more likely to be a problem on farms producing a variety of vegetable and fruit crops. They can also be pests of strawberry.

Dusky sap beetle is black and plain (3.5-4.5mm long), while four-spotted sap beetle (also known as picnic beetle) is black with four irregular yellow spots (5-6mm long).

Adults are first noticed about the time that tassels appear. They may invade corn borer tunnels or areas with other insect or bird damage, feed on pollen or silks, and may lay eggs in these sites or in silks at the tip of ears. Eggs are milky white and resemble tiny grains of rice. The larvae are small, pinkish white or creamy colored grubs about ¼ inch long. They may hollow out kernels of the upper half of the ear.

Monitoring. Sample for sap beetles when silks begin to wilt. Inspect the silk area at the tip of 20 ears at each of five sites and determine the percent of ears infested with adults, eggs, or larvae. Sprays for other ear pests usually control sap beetles, but if other pests are absent and more than 10% of ears are infested with sap beetles, treat for sap beetles. Insecticides used to control ECB and CEW,including synthetic pyrethroids, may reduce sap beetle. Insecticides will not completely control heavy infestations.

Scout for sap beetle when silk starts to wilt

Cultural practices. Ears with exposed tips, especially super sweet and Bt varieties are susceptible to infestation. To prevent or reduce damage, select varieties that have good tip cover, use clean cultivation, control ear-infesting caterpillars and remove or bury decomposing fruit on a regular basis. Sanitation is important to prevent successful overwintering and reproduction during the season. Bury corn residue especially decomposing ears; remove or bury of alternate hosts such as rotting tree fruit or discarded vegetables. Burial should be deeper than 10 cm.

BIOLOGY AND POSTEMERGENCE CONTROL OF YELLOW NUTSEDGE

Yellow nutsedge is 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 poste-

mergence 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.

Squash vine borer and squash bugs

Squash vine borer adults and squash bugs have been reported on vine crops in Southeastern Michigan. 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 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.

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. Consult Bulletin E-312, 2007 Insect, disease and nematode control for commercial vegetables insecticides registered for control squash vine borer on your crop.

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. The key to preventing squash bug problems is early detection and control of small nymphs. Growers should scout their field regularly for evidence of squash bug adults and eggs. Insecticides may be warranted if squash bugs are causing wilting of young plants (wilting is observed and squash bugs are present on the underside of leaves). Just before flowering, fields should be scouted for egg masses. This is the critical time to control squash bugs. If more than one egg mass per plant is found, an insecticide application is needed.

-Beth Bishop, Entomology, Michigan State

Trap Counts for July 5th, 2007

Location	ZI	EII	Total ECB
Pittsfield	0	0	0
South Deefield	0	0	0
Granby	0	0	0
Sunderland	1	1	2
Hadley (2)	2	0	2
Whately	1	1	2
Hadley (1)	2	0	2
Amherst (1)	0	0	0
Amherst (2)	0	1	1
Easthampton	0	0	0
Lancaster	2	0	2
Rehoboth	5	3	8
Concord	0	0	0
Spencer	4	0	4
Northbridge	1	0	1
Tewksbury	0	0	0
Tyngsboro	11	2	13
Still River	0	0	0
Hollis, NH	0	5	5
Mason, NH	0	1	1

--Thanks to our scouting network: R.Hazzard, P.Westgate, A.Brown, A.Lopez-Swetland, D.Rose, J.Golonka, S.Pepin, G.Hamilton, P.Willard, J.Mussoni

Corn update

Irrigation was a priority for just about every grower across the state last week and earlier this week. The storm that came through on the 4th brought an inch of rain and much needed relief from the aggravation of irrigating! Corn plants will be growing rapidly now as we are expecting temperatures to reach around 90 degrees again early next week. Harvesting early corn will begin this weekend and into next week.

The first European corn borer flight is over with trap captures at zero in most locations, or with only 1-2 moths hanging on. In more than one location trap captures were at zero. Scouting has shown that there are still a high number of borers feeding in pretassel and tasseling corn. Many fields are below threshold but "clean up" from the first generation may be needed. All corn where tassels are beginning to emerge from the whorl should be scouted. This is the best time to control ECB before populations start moving down stalks into the ears. Look for feeding damage, frass or ECB larvae. At 15% of plants infested or more, spray. Scout again 3-4 days after spraying. It may take two sprays 5-7 days apart to bring infesting populations under control.

Corn earworm trap counts are at zero again this week. We are expecting the flight to arrive within the next couple of weeks however you don't have to worry quite yet! CEW traps should be placed in fields where there is fresh silk. Watch for coastal

storms which may bring greater numbers up to the Northeast. See the table below for CEW thresholds. If you monitor for Fall Armyworm this is a good week to set up traps.

CORN EARWORM THRESHOLDS

Moths/Night	Moths/Week	Spray Interval
0 - 0.2	0 - 1.4	no spray
0.2 - 0.5	1.4 - 3.5	6 days
0.5 - 1 day	3.5 - 7	5 days
1.0 - 13.0	7 - 91	4 days
Over 13	Over 91	3 days

Note: spray intervals can be lengthened one day if daily temperatures are below 80 degrees F.

-Amanda Brown, UMass Extension

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