UMASS EXTENSION

Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 18, Number 11 July 19, 2007

Crop conditions

This week we've seen more heavy rainstorms and muggy weather. Irrigation is not an issue right now. Field tomatoes and peppers are generally not ready for harvest, though hoop-houses, greenhouses and very early planting with protection from row covers have allowed some growers to start picking. Early potatoes have been added to the harvest list. More farmers are harvesting their own sweet corn. The midseason lull in pests has given sweet corn and potato growers a break. Summer Colorado potato beetle adults are beginning to emerge in early potato fields. Tomato hornworm, pepper maggot, and spider mite are midsummer pests that have showed up in the past two weeks. Harvesting, weeding, spraying, planting fall crops, and troubleshooting unexpected problems are keeping everyone busy.

Next IPM field school: July 24th at Foppema's farm in Northbridge

Join us at Foppema Farm on Tuesday July 24, 4-7 pm for a chance to get off the farm, see other farmers, and get some new ideas! Ken and Lisa Foppema grow 50 acres of tree fruits, small fruits including blueberries and pick-your-own strawberries, greenhouse tomatoes, and diverse vegetable crops that are sold through their farmstand.

We will see drainage systems for erosions control, a pesticide mixing facility and deer fencing that were built as part of an NRCS contract under the EQIP program. Learn about what NRCS can offer to vegetable farmers. We will tour raspberries, blueberries, sweet corn, tomato, and cucurbit crops and get out in the crops to scout for pests. A microscope will be available onsite for disease samples that you bring, or that we find at the farm. Sonia Schloemann, Rob Wick, Rich Bonanno, Ruth Hazzard and Frank Mangan will be on hand to answer your questions on small fruit IPM, diseases, weeds, vegetable IPM, and new crops. We will finish off with a great meal, thanks to Foppema Farm and the Mass. Association of Roadside Stands.

Directions:

From Route 146: Take the Central Turnpike Exit off Route 146. Head East towards Northbridge, 2.5 miles. At the flashing light, take a right. Foppema's Farm Stand is 0.4 miles on right.

From the East or West: Take the MA Pike to Routes 146. Follow the directions from Route 146.

Attention tobacco growers: blue mold alert-July 17, 2007

Blue Mold, caused by *Peronospora tabacina*, is a Downy Mildew disease that occurs on tobacco crops. Like, Downy mildew on cucurbits, this disease has the potential to be a very destructive and its progress along the Atlantic seaboard from overwintering sites is monitored by University and Extension specialists. Dr. James LaMondia at the Connecticut Experiment Station has released a warning of a possible threat to the Connecticut Valley for Thursday and Friday of this week. Active and sporulating Blue Mold was reported on Tuesday in Lancaster County, PA. This is a large and active source of spores and the weather forecasts (cloudy conditions with intermittent rain in conjunction with winds from the infested area) indicate a serious threat of spread to the Connecticut Valley. The same chemicals that control Downy mildew on other crops should be applied on a preventive basis to high value tobacco crops. These include Aliette, phosphorous acid fungicides (ProPhyt, Phostrol, etc), mancozeb (Dithane), and dimethomorph (Forum). An emergency exemption (Section 18) for azoxystrobin (Quadris) is pending. The Blue mold pathogen is resistant to mefenoxam (Ridomil).

-Bess Dicklow, Univ of Massachusetts

Cucurbit update

Spindle shaped lesions are early symptoms of Plectosporium blight on a zucchini stem

Some growers have reported a glut of summer squash and zucchini on the market. Others note that cool nights late this week had slowed production. Winter squash and pumpkin crops range from just beginning to vine to fruit set of up to 4-5 inches.

We have not found powdery mildew yet in scouted fields. The place where it will show up first is in the oldest summer squash and zucchini plantings. Plow these under as soon as harvest is over to prevent spread of disease. In eastern NY, and Long Island, powdery mildew has been observed on older summer squash, but

has not been reported in MA yet. Downy mildew has been found as far north as Virgina Beach and western PA on watermelon and pumpkin, and in western NY on cucumber. None has been reported in eastern NY or in New England to date. Forecasting based on weather patterns from the current spore sources in mid-Atlantic coast and in western NY suggests that there is a 'weakly moderate risk' in northern VT and NH, and a "strongly moderate risk" in eastern MA that DM might reach these areas and be able to infect crops. Other areas have low risk. Plectosporium blight has not been reported yet in CT nor found in scouted fields in MA. This is a pleasant contrast to 2006 where it showed up early in July. However the wetter weather of this week has been more favorable. Bacterial wilt often shows up around this time, as a result of cucumber beetle feeding earlier in the season. Vines or leaves wilt, especially in the heat of the day, then show scorching at edges and gradual decline. It is too late to control this disease.

Scouting vine crops for disease entails searching the tops and undersides of leaves, especially older and mature leaves, as well as looking closely at stems and crowns and young fruit. It does not take long to walk through the field and check 50 leaves in groups of 5 or ten across the field. You'll learn a lot about your field! At this point in the season, the key to effective (and cost-effective) disease control is catching diseases early. Plectosporium shows up first on stems and petioles with bleached, sunken diamond-shaped white or grayish lesion. Downy mildew ioccurs on upper and lower leaf surfaces; spots are angular, pale green or yellow on the upper surface, water-soaked or purplish gray (when spores form) underneath. Only leaf blades are affected, becoming scorched and dry as the disease progresses. Powdery mildew shows up first as circles or patches of white spores on the upper or lower surface of older leaves. You will also detect whether squash bugs are present and nymphs are hatching. We have seen eggs but not nymphs yet.

Angular and bacterial leaf spots have been found in some fields. These are difficult to tell apart and it can be useful to have them diagnosed, since bacterial leaf spot can result in fruit rots. Both have white, angular lesions where the leaf tissue has died, usually on older leaves. Angular leaf spot rarely develops into a significant problem, except in very wet years.

Spider mites were found on one planting of summer squash and zucchini. These are difficult to see without a hand lens, but the brownish patches on the underside of leaves, left by feeding scars, are easily visible. Plants lose vigor. These may originate in the greenhouse or an outbreak may be the result of early season use of broad-spectrum insecticides.

Septoria LEAF SPOT OF TOMATO

Septoria leaf spot is one of the most destructive diseases of tomato foliage and is widely distributed throughout the world. It occurs wherever tomatoes are grown and is most severe where there are extended periods of wet, humid weather. This disease can destroy most of a plant's foliage resulting in sunscald, failure of fruit to mature properly, and low yields. Once infections begin, they can spread rapidly from lower to upper tomato canopy.

Symptoms consist of circular, tan to grey lesions with a dark brown margin, that appear on lower leaves first after the first fruit set. If conditions are favorable, lesions can enlarge rapidly, form pycnidia (fruiting bodies that look like black specks) and turn infected leaves yellow then brown. Fruit infection is rare, but lesions occur on foliage, stems, petioles, and the calyx. The pathogen overwinters on infected tomato debris or infected solanaceous weed hosts, and can also survive on stakes and other equipment. Seed infection is possible, but rare. Once introduced, *Septoria* is spread by splashing water, insects, workers, and equipment.

Most tomato cultivars are susceptible to *Septoria* leaf spot and must be protected with registered protectant fungicide sprays at regular intervals throughout the growing season. Rotation of tomato crops for two years, control of susceptible weeds, and deep incorporation of tomato crop debris after harvest are cultural control measures. Careful attention to the length of time that tomato foliage is wet by timing of irrigation, plant spacing, and staking to reduce contact of foliage with soil can also reduce disease severity. Keeping workers and equipment out of wet fields can reduce disease spread. Protectant fungicides include chlorothalonil (Bravo, Equus 500), maneb (Manex), mancozeb (Dithane), sulfur (Microthiol), bicarbonate (Armicarb), and copper (Kocide).

-Bess Dicklow, Univ of Massachusetts

ECB, APHIDS AND PEPPER MAGGOT IN PEPPERS

Pepper maggot fly (*Zonosemata electa*), which is closely related to the apple maggot fly, has one generation per year. It is typically a problem in southern New England, including southeastern Massachusetts, Connecticut and Rhode Island. However in 2006, it showed up and caused crop losses as far north as New Hampshire. Its range seems to be expanding. Pepper maggot fly activity has always tended to be quite localized. It varies by farm, by region, and by year. Many farms never have a problem with this pest. Some may have it and not realize it, because it is possible to confuse maggot damage with damage caused by European corn borer. Check infested fruit carefully for proper identification. If a given farm has a history of pepper maggot activity, or if pepper maggot fly has been captured nearby, then it is recommended that the grower check fruit

Pepper maggot adult fly. Photo by Jude Boucher, University of Connecticut Cooperative Extension

Pepper maggots develop inside the fruit and feed on the walls of the fruit. When they are fully grown, they exit out a small round hole allowing entry of soft rot bacteria. Photo by Jude Boucher, University of Connecticut Cooperative Extension

for stings (see below).

Pepper maggot was detected in Connecticut last week, and sprays are being recommended for this week. Adult pepper maggots emerge in mid to late July and are active for several weeks. Flies are smaller than a house fly, bright yellow with three yellow stripes on the thorax, green eyes, and clear wings with a distinct banding pattern. Females insert their eggs directly into the pepper fruit. The legless white maggots feed and tunnel inside the fruit, especially in the placenta. Maggots reach about ½ inch in length over a period of about two weeks, and have no distinct head capsule. When they are ready to pupate, they exit at the blossom end, leaving tiny round exit holes. These holes allow for the entry of pathogens into the fruit. Sometimes the oval brown pupae can be found inside the fruit. Often damage is detected only because of premature ripening or decay of the fruit.

Pepper maggot monitoring: Hot cherry peppers placed in the border rows can also be used as indicator plants. The egg-laying stings appear as depressions or scars and are easy to find on these small, round fruit. These stings may also be found on bell peppers. By timing insecticide applications with the first occurrence of the stings on the indicator plants fruit, damage to the main crop can be avoided. Pepper maggot threshold: If stings are observed on fruit, make two insecticide applications, 10-14 days apart, with a material labeled for pepper maggot. Dimethoate and acephate products (eg, Orthene) give the most effective control.

Pepper fruit with scars and dimples from egg laying by pepper maggot fly. Photo by Rebecca Grube, University of New Hampshire Cooperative Extension

European Corn Borer

The second generation of European corn borer moths is just starting in some locations. Captures exceeded the threshold of 7 moths per week at one trapping location in Hatfield, but not at other locations in the Connecticut Valley. It is the second flight, which usually begins the third or fourth week of July, which causes damage to pepper fruit.

ECB Damage in Pepper: Moths lay flat, white egg masses on the underside of leaves. Eggs hatch in 4-9 days, depending on temperature. ECB caterpillars are whitish or gray with a pattern of dark spots and a black or dark brown head. This dark head capsule distinguishes them from pepper maggots, which are completely white. Young larvae usually enter the fruit by tunneling under the cap. They leave a pile of light brown frass on the surface. Often this is the only indication that a pepper is infested until two or three weeks after the borer enters, when bacterial soft rot causes the fruit to decay.

ECB monitoring: Flight is detected by placing two white nylon mesh Heliothis Scentry™ traps in weedy areas near pepper fields. Traps should be placed 50-100 feet apart with the base at the top of the weed canopy. Bait one trap with a lure for the Iowa strain (Z I) and the other with a lure for the New York strain (E II), as both of these strains occur throughout New England. Check traps once or twice a week from the third week of July.

ECB threshold: Insecticide applications should begin one week after trap counts reach 7 per week (or one per night). This week delay provides an ample time margin for mating, egg-laying and egg hatch to occur before the larvae can enter the fruit. During the period when ECB moths are active, a regular schedule of insecticide applications should be maintained. This flight period usually lasts through August. At the end of the flight, when trap captures drop below 20 per week, insecticides should no longer be needed.

The intervals recommended for insecticide applications depend on the active ingredient used. Acephate products (7dh) can be used at 10-day intervals; synthetic pyrethroids (products range from 1 to 7 dh) nd spinosad (1dh) and at 7-day intervals; and *Bacillus thuringiensis* products twice weekly. Days to harvest restrictions for these insecticides vary from 0 to 7 days, and often dictate the choice of material. Use of selective products will conserve the natural enemies that keep aphids under control. This includes spinosad and Bt, as well as Intrepid, an insect growth regulator, (1dh). Do not rely entirely on one product or chemical family, to prevent resistance. If you are concerned about pepper maggot, use of Acephate product for the first ECB spray will also control the end of pepper maggot flight. For more details check the *2006-2007 New England Vegetable Management Guide*. The online edition, www.nevegetable.org, has current, updated pesti-

cide information.

Aphids

Aphids fly into pepper fields in June and July. The most common species is green peach aphid (*Aphis gossypii*), which is light green, yellow green, or pink, with no distinctive markings. Aphids can easily be seen with the naked eye, but a 10X hand lens allows you to observe them more clearly. Wingless females use their piercing-sucking mouthparts to feed on the underside of leaves. Females produce smaller, light-green nymphs, which feed in clusters nearby.

Most of the time, beneficial insects such as ladybeetles and lacewings keep aphid numbers under control in peppers. By avoiding unnecessary insecticide applications, these natural enemies can be conserved. Use of broad-spectrum insecticides, particularly synthetic pyrethroids, to control other pests may cause aphid outbreaks. High numbers cause a buildup of sticky honeydew secretions on leaves and fruit.

Green peach aphids can vector viruses such as cucumber mosaic virus (CMV). Insecticides are not effective in controlling these viruses because the transmission occurs rapidly at low population numbers.

Aphid monitoring: From mid June to September, examine the underside of four leaves per plant on 25 plants chosen at random. Count aphids found. Calculate the average aphids per leaf (divide total by 100).

Aphid threshold: 10 per leaf. If five per leaf are found, check again within a week to determine if numbers are rising or falling.

-R. Hazzard and A. Cavanagh University of Massachusetts with information from J. Boucher University of Connecticut Extension

Tomato hornworm caterpillar, with eggs of Tachinid fly parasite

Tomato hornworm

Late July and early August are usually the time when we see tomato hornworms. These large caterpillars typically appear in small numbers and cause their impressive feeding damage to just a few leaves or plants. Larvae consume large amounts of foliage on peppers, tomatoes, eggplant, potatoes, and related solanaceous weeds. Now is the time to scout, by searching leaves for damage, frass or larvae. Often one sees defoliated stalks or the characteristic dark-green droppings (fecal pellets) before the caterpillar is located.

There is one generation per year in northern areas. The adults are large moths, predominately gray or gray-brown with lighter markings. They are commonly referred to as sphinx, hawk, or hummingbird moths. The adult tomato hornworm (*Manduca quninquemaculata*) is known as the five-spotted hawk moth while the adult tobacco hornworm (*Manduca sexta*) is called the Carolina sphinx. The wingspread may reach five inches and the hairy, robust abdomen has yellow spots. They emerge from over wintered pupae in the soil in late spring or early summer. The moths are commonly seen at dusk, hovering hummingbird-like over beds of petunias and other flowers with long corollas. Nectar is extracted through their long, coiled, tube-like mouthparts.

The spherical greenish-yellow eggs are deposited singly on the undersides of host plant leaves. The eggs hatch in approximately one week and larvae begin feeding on foliage. Larvae feed for 3-4 weeks, molt five times, and may reach four inches in length and 1/2 inch in width when full grown. Both species are green with a distinct "horn" on the top of the tail end. The sides of the tomato hornworm are marked with a series of white marks resembling a "v" laying on its side and pointing toward the head. The white marks on the sides of the tobacco hornworm form a series of seven diagonal lines. The tip of the tomato hornworm's horn is black while that of the tobacco hornworm's is red.

Full-grown larvae burrow 3-4 inches into the soil and form dark brown, two-inch long pupae. A sheath for the mouthparts projects from the head of the pupa and curves downward, resembling the handle of a pitcher.

A **parasitic Braconid wasp** is an important and fairly common natural enemy of the hornworms. The wasps lay their eggs inside the body of the caterpillars. After feeding within the caterpillar body, the larvae of the wasps eat out through the skin and spin the cocoons on the caterpillar surface. The adult wasps later cut out circular lids and escape from the cocoons to attack other hornworms. If one is hand-picking hornworms, those with cocoons of parasitic wasps on their back should not be killed.

Controls: There is no set economic threshold for this pest in tomato. Where damage is unacceptable, or if there are high numbers, foliar sprays can be used. Use a selective material that will conserve beneficial insects, because those predators and parasites are very likely keeping your aphid populations under control. Insecticides which are specific for caterpillars include *Bacillus thuringiensis* (Bt) *kurstaki* or *aizawi* strain (Dipel DF, Agree, or Xentari, etc.), indoxycarb (Avaunt), tebufenozide (Confirm 2F), or spinosad (SpinTor 2SC or Entrust). Several synthetic pyrethroids are also labeled (*note:* these could result in aphid outbreaks). Although Bt usually works best on small larvae, in this case it will work very well even against large hornworms. In peppers, any controls used for European corn borer should control hornworms.

-R. Hazzard Thanks to sources: Utah Sate Univ.Extension Fact Sheet # 74, Purdue Vegetable Crops Hotline # 409 (Frankie Lam)

Preventing deer damage

The population of deer in Massachusetts continues to grow, and damage on vegetable and fruit crops can be serious. They can be very damaging in vine crops, and now that the fall pumpkins and winter squash are forming fruit, it is critical to take

action to prevent damage if you are in a high deer area. Temporary electric fencing can be an effective barrier if it is installed before deer begin feeding in a field. Repellents are another option. Views on the efficacy of repellents and fences vary! One grower I have spoken with finds that applying fish emulsion to his squash crops around the time he expects deer to arrive serves as a repellent. Others questions their cost-effectiveness. If you are certified organic and selecting a repellent, check with your certifier on what is allowed. Many growers I have spoken with who have used electric fencing are satisfied with the results. If you have had deer damage in the past, it is a fairly sure bet that if you do nothing, you will have damage again. Deer fencing is a project that can be funding through an NRCS conservation plan. At the July 24 meeting at Foppema Farm in Northbridge, we will have a chance to see tall, permanent deer fencing that now protects fruit trees from deer feeding. NRCS cost-sharing helps make this affordable.

Deer Fencing

Fencing, the construction of a barrier between the crop and the deer, is the most effective long-term solution to deer damage. The basics of fencing apply to both electric and non-electric fencing. It is important to understand that deer can easily jump a fence 10 feet high, but much prefer not to. Deer prefer to go under or through a fence than to jump it if at all possible. Thus, the bottom wire of an electric fence should be no more than 10 or 12 inches off the ground and non-electric fences should either have an even lower bottom wire (about 6 inches) or be of mesh construction.

Fence maintenance is critical in both applications. If a tree falls on the fence or a hole is cut in the fence, the fence should be repaired immediately. Once deer have gotten inside and discovered the crop, it will be harder to keep them out, even with an electric fence. No gaps should exist in the fence, access must be provided through gates that are closed at all times. Fences should have a clear perimeter, at least 5 or 6 feet on the outside of the fence, so deer have to cross an opening before encountering the fence. This also enhances visibility of the fence to the deer. Deer will blunder into a fence placed tight to a wooded edge and can actually damage or take down sections of a fence simply because they do not see it very well, especially smooth wire designs. Having a clear border will increase the effectiveness of the fence and aid in maintenance.

A horizontal space between two strands makes deer more reluctant to try to jump over the fence.

Electric Fencing

Electric fencing need not be a tremendously costly remedy to deer damage. Many small fields can be protected by portable units that can be put up and taken down in half a day. Larger farmers and orchards may want to invest in permanent fences, but even here costs can be reduced by using solar chargers and having clear perimeters. For small fields of a few acres or less, portable fences either of regular electric wire or tape ("Hot Tape") will provide relief from deer. Hot tape is a wide, colored tape with several wires embedded inside. It enhances protection by being very visible to deer, even at night, while providing an electric shock on contact. As few as two strands of electric wire can be used to protect crops if it is put up immediately after planting, it is baited initially (explanation to follow), it is always "hot", and is maintained properly (e.g., do not let weeds or grass grow up into the fence). The effect that being shocked by an electric fence has on deer behavior and their subsequent avoidance of the fence allows a landowner to use a lower fence than in the non-electric case. Baiting the fence is quite simple but enhances the deterrent powers dramatically. Deer are extremely well-insulated over most of their body with fur. Couple that with their tendency to go under or through a fence, where they are most likely to contact the fence with their back or neck and it is easy to see how deer can penetrate an electric fence and not be shocked too badly. Baiting the fence, usually with a metal tab smeared with peanut butter, will make the deer contact the fence with it's nose and tongue, wet parts that will conduct the electricity quite well. This first contact and the resulting shock on sensitive parts will educate a deer to respect the fence for quite some time. Obviously, the fence must be off to apply the tabs and bait, but turn it on immediately upon finishing. Space the tabs about 30 feet apart and keep the fence baited for several weeks after the fence is installed. When the deer have become acquainted with the fence the baits can be removed if desired. However, deer will occasionally test a fence that has shocked them and new deer may enter the area so keeping the fence baited is not a bad idea. Most important is to keep the fence hot at all times. Deer will try to go under or through the fence, thus keep the bottom wire 10 to 12 inches above the ground. In a two-wire fence, the second wire can be at a height of 30 to 36 inches above the ground. A three-wire fence can have strands at 12, 24, and 40 inches. Keep in mind that adult deer are about 36 inches at the shoulder. Fence posts do not need to be as stout as with the non-electric fence. Fiberglass posts driven into the ground at 30 to 40 foot intervals, close

An electric fence with a double strand of tape protects vegetable crops at Gallagher Farm in Rhode Island.

enough to keep the fence from sagging are adequate. It is the electric shock that provides the deterrent here, not the strength of the fence. Electric fence supplies can be found at farm supply centers or through fencing specialty companies. Three fencing specialists in the Northeast are:

-**Wellscroft Farm** 167 Sunset Hill- Chesham Harrisville, NH 03450 (603) 827-3464

-**Kiwi Fence Systems** 1145 E. Roy Furman Hwy. Waynesburg, PA 15370 (724) 627-5640

-**Walnut Grove Farm** 50 Cartland Rd. Lee, NH 03824 (603) 659-2044

Non-electric Fencing

The non-electric fence does not work as a behavioral barrier to deer the way the electric fence does; thus it needs to be constructed differently. To be effective, these fences should be a minimum of 8 feet tall. There are two styles to consider: smooth wire strands or mesh. The mesh can be either woven wire or plastic mesh, both will work well. Non-electric fences usually are permanent structures. Because the wire needs to be tensioned, the fence posts must be very secure and corners constructed carefully. Here the fence itself provides the deterrent. Deer will attempt to push through a non-electric fence and are strong enough to exploit weaknesses in fence design. The result will be a break in the fence and crop damage. Many designs exist for non-electric fencing. For stranded wire, they involve gradually increasing distances between wires as the height of the fence increases. Again, this is because deer prefer to go under or through a fence and are not likely to jump through the top strands. Keep the spacing between the lowest strands (below four feet) to no more than 10 inches, with the bottom strand about six inches above the ground.

The strands above four feet can be spaced at 15 to 20 inches. Attaching streamers or flagging to the strands increases the visibility of the fence and provides an additional deterrent. Woven wire or mesh designs are used extensively at captive deer facilities to keep deer inside pens and do just as good a job keeping deer out. The woven wire designs typically have small spaces at the bottom and progressively larger spaces toward the top. Mesh construction may be easier to maintain than stranded wire and more resistant to the attempts of deer to push through. In places where appearance is a concern, heavy-duty plastic mesh, usually black in color, can be used.

Repellents

Repellents are advertised to reduce deer damage by making the target crop taste or smell unpalatable to deer. All repellents are billed to reduce, not eliminate, deer damage. If applied after deer damage has occurred, repellents likely will not repel deer from something they have already eaten. They must be reapplied on new growth, or after rain and weathering causes them to become ineffective.

-R. Hazzard, with information from John E. McDonald, Jr., formerly of Massachusetts Division of Fisheries and Wildlife, Westboro, MA and Craig S. Hollingsworth, University of Massachusetts

MASS HARVEST FOR STUDENTS WEEK, SEPTEMBER 24-27, 2007

The first annual Massachusetts Harvest for Students Week is coming! During the week of September 24-28, 2007, schools and colleges across the state will purchase, serve, and highlight fresh locally grown food on their menus. Our goal is that the Week will spur new local food buying relationships between schools and farms, as well as increase existing purchasing in schools around the state.

Schools will also be encouraged to focus on the benefits of locally grown foods in the classroom, including school gardens, trips to farms, and agricultural themes in the classroom. The relationships created between schools and farms during the Week will help strengthen the state economy while introducing students to local, healthier food. Participating schools will receive an introductory package with resources on how to buy locally and free technical assistance from the Mass. Farm to School Project on setting up a buying relationship with appropriate farmers.

Are you a farmer interested in selling to schools? Are you interested in taking part in Massachusetts Harvest for Students Week? Contact Kate McKenney, Mass. Harvest for Students Week Program Coordinator, by phone at (413) 584-4410 or (413) 253-3844, or by email at kate@massfarmtoschool.org.

THE 4TH ANNUAL HANDS-ON BEGINNING FARMER PRODUCTION & MARKETING WORKSHOP

Where: Lancaster, Massachusetts at the Flats Mentor Farm

When: Saturday and Sunday, July 28-29, 2007

Saturday: Visit Farmers Markets and stores where FMF farmers sell their produce in Boston and surrounding cities. Transportation provided.

Sunday: Workshops- For the full workshop schedule visit: http://www.immigrantfarming.org/index.php?page=182

All food will be provided. You may wish to bring a dish to share for lunch on Sunday. We are sharing food from all of our cultures. Bring the family!

Registration for the Market visits on Saturday is required.

If you're coming from out of town please make hotel reservations for Friday and Saturday nights at Holiday Inn Express 121 Coolidge St, Hudson, MA 800-315-2621.

There is no fee for this workshop. Some scholarship money is available for transportation and lodging so people that can't afford it can come nevertheless.

Hosted by: Heifer International, UMass Extension, National Immigrant Farming Initiative (NIFI), Growing Power Inc, and the Flats Mentor Farm (FMF)

Contact: flatsmentorfarm@comcast.net or Maria at 978-815-2199

Sweet Corn Trap Counts for July 19th, 2007

Location	ZI	EII	Total ECB	CEW
Sheffield	0	0	0	0
Pittsfield	0	0	0	3
South Deerfield	0	0	0	-
Deerfield	0	0	0	0
Granby	0	0	0	3
Whately	1	5	6	0
Hadley (2)	1	0	1	0
Hadley (1)	0	0	0	0
Easthampton	0	1	1	2
Amherst (1)	0	0	0	1
Amherst (2)	0	0	0	2
Sunderland	4	0	4	0
Rehoboth	17	21	38	4
Concord	0	2	2	1
Leicester/Spencer	0	0	0	1
Northbridge	0	0	0	6
Tyngsboro	0	0	0	1
Tewksbury	5	1	6	7
Lancaster	3	3	6	1
Still River	1	0	1	1
Mason, NH	0	0	0	3
Hollis, NH	2	0	2	1
Litchfield, NH	1	0	1	0

Pepper Trap Counts for July 19th, 2007

Location	ZI	EII	Total ECB
Hadley	0	3	3
Amherst	0	2	2
Hatfield	0	47	47

CORN UPDATE

Sweet corn has been growing rapidly in the past few weeks. With all of the sunshine, humidity, and rainfall it appears as though sales are up as more people are cooking outdoors and enjoying their favorite summer time treat! Rains were welcome, but hail and heavy winds resulted in some flattened corn in scattered locations.

Come to Foppema Farm next Tuesday, July 24, 4-7 pm to see great sweet corn and learn corn scouting in action!

European Corn borer: Trap captures remained low this week in most locations but high traps counts did show up in a few locations indicating the start of the second generation. We can expect flight to pick up next week, but for now it is low. Cooler night temperatures (below 55) are likely delaying emergence of moths from their pupal stage. Where flight has begun (significant numbers were caught only in two locations, Hatfield near the Ct River, and Rehobeth), egg laying will begin by next week and hatch shortly after depending on temperature. It is not too late to order traps and monitor timing on your own farm (traps and lures can be ordered at Great Lakes IPM, 1-800-235-0285 or Gemplers 1-800-382-8473) by placing two traps (one for E and one for Z strain) in weeds at the edge of the field.

First generation infestations have been cleaned up by now and new blocks of pretassle and whorl corn are not infested. Every block scouted in the Connecticut Valley showed infestation levels of ECB below 15% so no sprays were necessary. Any new blocks were tassels are emerging should be scouted and treated when infestation levels are above 15%. Scout blocks 3-4 days after spraying to ensure your coverage was adequate. Silking corn should be safe where trap counts are less than 5 moths per week (pending CEW trap counts). We can expect counts to go up next week, followed by new eggs and, about a week after flight begins, new borers.

Corn earworm: CEW is being captured at low levels in several locations, calling for an initial spray on silk where counts per night were > 0.2 moths (>2 moths per week). The majority of trap counts in the Connecticut Valley and in the central and northeastern sites were at zero or one, below threshold for sprays. Surprisingly CEW has not been a huge problem as of yet. Coastal Maine and coastal CT captured CEW up to 3 or 4 per night, but coastal NH had no captures greater than three moths per week, and most were 0 or 1.. RI captures were also below 2 per week. Want your own early warning system? Lures for Helicoverpa zea for the rest of the season and a trap would cost you about $75. Great Lakes IPM and Gemplers carry these. Place in fresh silk and keep moving to a new block, as the odor of fresh silk attracts the moths.

Fall armyworm: Time to scout whorl stage corn as well as pretassel corn for FAW. Monitoring for FAW should begin now if you haven't put your traps up already. Universal Moth Traps and FAW lures are available from Great Lakes IPM and are recommended since trap counts can be variable from farm to farm even in the same county. Fall armyworm damage shows up as ragged leaves in whorl stage corn and has a typically spotty habit. Spray trials conducted last year using Avaunt (indoxacarb) showed high efficacy rates against FAW. Infestation has shown to be very concentrated in some fields so sending an applicator in with a backpack sprayer for spot treatments might be a better use of time and money in some fields. Overhead sprays with high pressure directed into the whorl of infested plants should take care of any problems. Again, scout 3-4 days after spraying to ensure your treatment was successful!

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 and Ruth Hazzard

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