



## VEGETABLE IPM MESSAGE

AUGUST 8, 2002

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### CROP CONDITIONS

Last Friday's rainstorm brought over an inch of rain to most of Western Mass., along with winds that tossed around corn and pepper plants in some fields. However, Central, Eastern and Southeastern parts of the state are extremely dry with no significant rainfall for weeks. Growers are pumping water to save their crops and watching their water supplies decline.

Dry conditions are being reported in all the other New England states both South and North of Massachusetts. Last week's air temperatures were 4-6 degrees above normal around the state. Cooler temperatures and drier air this week mean less disease development but may slow down the rate of harvest on warm-season crops.

Peppers, tomatoes, melons and eggplants are coming in strong now, along with sweet corn, leafy and heading brassicas, cucumbers, radishes, summer squash, lettuce, beets. Onions are sizing up and are being harvested. Potato harvest is in full swing and was reported as 5% harvested at the end of last week. Retail and wholesale sales are strong.

### NEXT TWILIGHT MEETINGS:

Keown Orchards, Sutton MA, August 28.

Forbidden Fruit Farm, Dartmouth MA, September 4.

The twilight meeting at Lampson Brook Farm Cooperative on August 7 gave us a chance to see a wide range of crops being grown by member farmers. Below, the group views heirloom

tomatoes, mesclun salad mix, vine crops planted into in fall-laid plastic, and garlic ready for harvest.

### *SPECIALTY CROPS SERIES:*



### DAIKON RADISH (*RAPHANUS SATIVUS*)

**Other names:** Lo Pue (Hmong), Lor Bark (Cantonese), Cu-Cai Trang (Vietnamese), Hua Piahs (Thai), Mu (Korean), Long White Radish (English).

Daikon is a Japanese word meaning 'large root'. It is the same genus and species as the small, round, red-skinned European type that we are more familiar with in Massachusetts. Daikon radish can grow much bigger than our more traditional type, attaining weights as high as 50 pounds; however most are harvested when they are between 1 and 2 pounds. Most Daikon radishes are white, but some are yellowish, green, or black. This root crop is very popular among most Asian groups; however, it is important to know the type, size, and

color that a particular groups desires. Unlike common radish, Daikon leaves have great notches and spread out in a rosette. Leaf spreads may be more than 2 feet. Daikon is used for pickles, stir fry, and salads.



Daikon radish produced in Lancaster, MA.

**Culture:** Early and late varieties are available for both spring and fall harvests. Sow seeds, according to planting dates, 2" apart in rows 18" to 36". Thin according to the size of root desired; higher densities produce smaller roots than lower densities. Most varieties are ready in 60 to 70 days. Harvest with fork, taking care not to injure the root. Daikon will store well in cold storage.

**Seed Sources:** Evergreen Y. H. Enterprises, P.O. Box 17538, Anaheim, CA 92817, [www.evergreenseeds.com](http://www.evergreenseeds.com); Johnny's Selected Seeds, 184 Foss Hill Road, Albion, Maine 04910, [www.johnnyseeds.com](http://www.johnnyseeds.com), Siegers Seed Co., 13031 Reflections Drive, Holland, MI 49424, [www.siegers.com](http://www.siegers.com).

*Tim Andenmatten, Field Technician*

## OKRA (*ABELMOSCHUS ESCULENTUS*)

**Other names:** Lady's Fingers, Gumbo (English), Huang Giu Kui (Chinese), Dau Bap (Vietnamese), Krachiap Man (Thai), Quingombó (Spanish), Quiabo (Portuguese).

Okra is a tall growing warm season plant from the same family as hibiscus. Okra was cultivated by the Egyptians in the 12<sup>th</sup> century AD, and arrived in the US in the 18<sup>th</sup> century with the slave trade. The immature pods are used in soups, stir fries, and stews. Okra may be the cornerstone of Cajun cooking in Louisiana. Ever wonder why it so hard to get catsup out of the bottle? Okra, a secret ingredient in catsup, acts as a mucilage.

The Hibiscus like flowers and upright plant give Okra an ornamental value.

**Culture:** Okra seeds will not germinate well in cold soils. Sow seeds, in warm soil, 1 inch deep 12 to 24 inches apart. Harvest pods when they are still young and tender (2 to 3 inches long for most varieties). Okra must be picked often, almost every other day. Large pods taste woody and are tough to chew. The Okra plant may irritate bare skin, so gloves and long sleeves are recommended.



Okra flower and fruit (left of flower) in Sterling, MA.

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*Tim Andenmatten, Field Technician*

## GIANT HOGWEED

Giant hogweed has been receiving a lot of publicity lately. It is well established in some southern areas of Hampden county, and has been located in isolated cases almost across Massachusetts. So far, it has not been found in the Southeast or in Berkshire county, but because many infestations are the result of escaped ornamental plantings, it is likely to be found anywhere. **Why the hoopla?** The plant is an aggressive invader and its sap, when contacting the skin and exposed to light, causes big blisters: think of a 10-foot tall poison ivy. Since it is not strongly established in the state, there is a good chance of managing so that it does not become another Japanese knotweed (or worse).

**How to recognize it.** It is very big: 10 to 15 feet tall, and basal leaves 2 to 5 feet across. The stem is 3 to 4 inches in diameter its base and the stem has strong purple blotching. Flowers are in an umbel (like an umbrella) about 2 feet across. At this time of year, it has gone to seed. A member of the carrot family, it looks like Queen Anne’s lace, but huge. It can be confused with a number of plants: cow parsnip (6 ft tall maximum, with fine hairs and only light purple coloration, if any): purple angelica (with an even purple stem, and flowers or seeds in a spherical or ball-shaped pattern); and wild lettuce (up to 12 feet tall, but with a stem less than 2 inches in diameter, the flowers do not form an “umbel.” Wild lettuce is just beginning to flower).

If you suspect that you have giant hogweed, contact the MDFA Hogweed Hotline (617 626 1779). More information can be found at:

[http://www.state.ma.us/dfa/pestaalert/giant\\_hogweed.htm](http://www.state.ma.us/dfa/pestaalert/giant_hogweed.htm)

*Craig Hollingsworth, UMass Extension*

## TARNISHED PLANT BUG

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**Tarnished plant bug** (*Lygus lineolaris*) adults and nymphs are being found in several vegetable crops. Typically this is not a serious vegetable pest, but in certain fields and crops (basil, water spinach) we are seeing significant damage. Adult tarnished plant bugs (TPB) are about 6 mm long (1/4 inch), brown or tan or greenish with darker markings on their wings and back. Nymphs are bright green and progress through 5 molts (instars) from first hatch to the adult stage. They can be mistaken for aphids, but move much faster when disturbed. Overwintered adults lay eggs in spring, depositing eggs in stems and leaf ribs in host plants. These adults and nymphs attack strawberry flowers in May. A new generation of adults (which is what we are seeing now) will produce another brood in the late summer, for a total of 2 or possibly 3 generations per year.

**Feeding:** Adults and nymphs have piercing sucking mouthparts (stylets), which are used to penetrate plant tissues and suck up cellular contents. TPB select succulent, nutritious

tissues such as new growth or newly forming fruits (just after blossoming). While feeding, the bugs secrete a toxic substance from their salivary glands, which kills cells surrounding the feeding site. Usually the first signs of damage are small brown spots on young leaves. As the tissue grows, healthy tissue expands while dead tissue does not, which results in holes and distorted, malformed leaves, buds or fruit. Terminal shoots and flowers may be killed.



**Damage:** In **strawberry**, this distorted growth of fruits is known as cat-facing. In **celery**, feeding on tender stalks produced large, brown colored wilted spots and blacking of joints, know as “black-joint’. In **beans**, feeding on flowers causes them to drop, and feeding on seeds in young pods causes pitting and blemishing of pods. In **tomatoes, eggplants and peppers**, feeding may occur on flowers and stems, causing flower drop. Fruits may also be attacked leading to indentations, bumps, or yellowing of the flesh where the fruit is “stung” by the piercing mouthparts of nymphs or adults. These could be confused with **stinkbug** damage, but they do not have the white pithy areas beneath the skin that is typical of stick bug damage. It is not common to see this damage, but if the damage occurs it may help to determine the cause. In **pepper** and in **basil**, feeding in emerging leaves causes distortion and browning of leaves. In **apples**, adults feed on fruit buds and cause fruit dimpling and scabbing, or dropping off (abscission) of the buds.

We have been finding TPB damage in **water spinach**, which is being grown as a succulent green for Asian markets. TPB feeding occurs in the tiny new leaves in internodes. Holes are punctured in the folded tiny leaves and cells are killed, and as these leaves open up this results in symmetrical holes and distortion of the leaves. Brown scars occur in the internodes. Plants develop more branches in response to dead terminals, which makes them less marketable. Markets want long, single stems with as little branching as possible.

**Weeds are also host plants:** Tarnished plant bugs attack a large variety of crops weeds, flowers, and orchard crops. Weed hosts include wild carrots and other umbelliferous crops, redroot pigweed (and other amaranths), lambsquarters, mustards, shepardspurse, rocket, goldenrod, and mullein. Alfalfa is a favored host, and harvesting alfalfa often stimulates major lygus migrations. Other legume hosts include vetch, lupine, and fava beans.

**Management:** Whole farm management should include removing sources of infestation outside the crop. Disk or rototill weeds along field borders to reduce weed hosts, or keep them mowed all season. However, disturbing non-crop areas by mowing can encourage movement of TPB into your crop, so it should be avoided at critical periods when the crop is vulnerable. There are natural enemies of TPB, including a parasitic wasp, which was released for control of TPB in alfalfa (*Peristenus digoneutis*). This was released in New Jersey and has spread throughout the northeast, and can cause up to 50% mortality. However, it currently does not reduce the numbers sufficiently to prevent damage in key crops.

Most vegetable crops can sustain a small population of TPB without economic injury. Synthetic pyrethroids and dimethoate are labeled for TPB in apples and provide effective control; dimethoate is preferred because it has less impact on mite predators in apples. These products are labeled for many vegetable crops. We are observing economic damage in water spinach and thai basil. Unfortunately it is difficult to find insecticides that are labeled for these crops. For organic growers, neem products may provide some control.

## SPIDER MITES: KEEP AN EYE OUT IN HOT WEATHER

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Keep an eye out for **spider mites** in tomato, watermelon, cucumbers, potato, and eggplants. Spider mites are favored by hot and dry weather, which aggravates injury by further stressing the plant. Treatment is warranted if mites are on new growth or throughout the planting, especially in plantings that need to stay healthy for a few more weeks.

The **red spider mite** and the **two-spotted spider mite** are the most common in vegetables. The red spider mite (also called the red spider, the red mite, or spider mite) may be whitish, green, or red, depending upon age and species. Adults are about 1/60 inch long. Mites are more closely related to spiders than to insects and generally have eight legs. A 10X hand lens helps in scouting! Males are oblong in shape while females are more round.

Mites cause injury by sucking plant sap or cell contents with their needle-like mouthparts or stylets. They also inject saliva during feeding, which may produce toxic responses in plants, producing discoloration, necrosis or distortion on leaves, stems and fruits. Leaves become blotched with pale yellow, reddish brown spots ranging from small to large areas on both upper and lower leaf surfaces. Plants lose vigor. In the case of fruit or pods the piercing-sucking group causes off-color spots or wart like growths (tomato), pod drop (beans), and fruit curvature of the fruit (okra, melons etc.).

The mites are also severe pests of plants grown inside or in greenhouses. Those that attack vegetables spin webbing on the plant surface, and also migrate by spinning a long strand of silk and ballooning on the wind. The first outbreak of mites in a field generally occurs around barns, fences, trees, or some obstacle in the field acting as a windbreak. A good indicator of spider mite buildup is often the presence of bleached out looking nightshade plants at field margins and waste areas.

Biological control with predaceous mites that can be purchased commercially is a viable option. It must be initiated before populations have a chance to build up. Chemical

control options include Agrik-Mek 0.15 EC (note 7DH interval on tomato and watermelon) and kelthane (2DH, also labeled for pepper). Organic growers could use Cinnamite, which is a contact toxic, however, phytotoxicity can occur; do not use on water-stressed plants and make a test application. Insecticidal soap and neem are other options for suppression. Keeping the crop healthy, well-watered and well nourished is also key to getting ahead of this pest.

*R Hazzard - Adapted from Christy Hoepfing, CCE, NYS*

## CRUCIFERS

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**Caterpillars** continue to munch away in brassica crops. We have observed **diamondback moth**, **cabbage looper**, and **imported cabbageworm** at all stages this week. Keep checking for larvae—underneath the leaves.

Cost of materials is often a factor in selecting what to use. Make sure you look beyond the price per gallon: Calculate the cost per fl oz or per lb, then multiply by your rate per acre to figure your cost per acre. Here are some rough figures based on contacts with several suppliers last winter. These will vary with supplier, time of year, etc. Bt products at 0.5 lb per acre run about \$6. The less expensive synthetic pyrethroids (eg Pounce, Warrior) at a mid-range rate run around about the same. Spintor 2SC costs \$4.50 to \$5.00 per ounce and can be used at 1.5oz per acre on caterpillars in brassicas (3 oz/acre on CPB in eggplant or potato or ECB in sweet corn). It is available in quart containers. Lannate LV at 1.5 pt/acre would cost about \$11/acre.

**Other considerations to use:** How long will it last? What is the re-entry interval and days to harvest? What impact will it have on natural enemies that are keeping aphids under control? What protective gear do I have to wear?

**Cabbage root maggot on fall root crops:** New **maggot flies** are emerging from underground pupae. Adults will typically lay eggs in mid to late August on late season root crops such as turnips or Daikon or on susceptible crops such as Chinese Cabbage or Bok Choi. Scout for eggs on young plants. Dry

conditions will reduce the risk, but if you are watering frequently the soil conditions will be more favorable.

**Flea Beetles:** We have been sampling soil underneath Brassica crops and screening for larvae and pupae of **flea beetles**. In the past few weeks we have been seeing both larvae and pupae. This week the numbers went down. Meanwhile, the numbers of adults on attractive greens at the SDF research farm have gone up. We are also finding that these beetles are feeding and that the females are full of eggs. It looks like we are in for another generation of flea beetles. Some growers are reporting less feeding damage in new crops at this time.

However, in scouting we have found plenty of beetles and feeding holes in Asian Greens and in new plantings. Our trials have shown good control of flea beetles with Sevin. Organic growers can take some encouragement from the fact that we have had promising results with hot pepper wax.

We are looking for growers who would be interested in testing hot pepper wax in their Fall Brassica Greens. If you are interested, please call Matt Verson at 413-545-3696.

*Caryn Andersen, Matt Verson, R Hazzard*

## TOMATO

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**Fulvia Leaf Mold** was observed on tomato in a home garden. This fungal disease is more common in greenhouse tomato than in the field, but we have observed some years in the field.

**Tomcast Update:** DSV's were cranking along at 2 or 3 per day in the hot weather, but the cooler drier weather this week has slowed things down. Fifteen DSV's accumulated in eight days. If you have not sprayed since the beginning of August, and you are relying on regular fungicide applications to keep foliage healthy, its time for another spray. However, if you except to keep picking in a block for only another one to two weeks, further sprays may not be worthwhile. Many growers make succession plantings of tomato to keep a steady supply of quality fruit throughout August and September. If you are done with one block, disk it under as soon as possible to reduce spread of spores or bacterial into other blocks (if you can spare the time to remove stakes or plastic!).

**DSV VALUES: July 24 – August 8, 2002  
SOUTH DEERFIELD RESEARCH FARM**

Date	DSV's/Day	Date	DSV's/Day
July 24	2	August 2	2
July 25	1	August 3	3
July 26	1	August 4	2
July 27	3	August 5	2
July 28	4	August 6	1
July 29	4	August 7	1
July 30	3	August 8	1
July 31	3	<b>Days to reach 15 DSV's</b>	<b>8</b>
August 1	3	<b>Cumulative DSV's since May 24</b>	<b>107 DSV's</b>

*Stephanie DeGray, R Hazard*

## CUCURBITS

Fruit set in winter squash and pumpkin may have been affected by the periods of high temperatures, which can cause female flowers to abort. Pumpkin and squash fruits are sizing up and Powdery Mildew is less severe and later than in some years.

Powdery mildew is reported to be slow in developing this year.

**Scout crops now for Powdery Mildew, Squash Bugs, Aphids, and Cucumber Beetles.**

If you are in a field that has been rotated out of cucurbits for 2 to 3 years, you are not aiming for long-term storage, and **Black Rot** is typically not a problem for you, it fairly safe to wait until you see powdery mildew to begin a fungicide schedule. However, if you are growing in non-rotated fields, have had trouble with Black Rot, and want long-term storage, then it is advisable to apply fungicides for protection from Black Rot infection even if you have not seen Powdery Mildew yet. Initial infection occurs during fruit development.

## BIRD PROBLEMS IN CORN & TOMATOES

Growers are reporting problems with **crow damage** in tomatoes and melons, and **blackbird damage** in sweet corn. Bird damage in sweet corn and other crops tends to be worse in a dry year. It is better to take action in advance of the problem, because once birds get in the habit of feeding on your crop, it will be harder to stop them! These are smart and persistent pests that require several tactics to deter them (“controlling”, or even “managing” birds is a bit too strong a word...). However, **it is possible to prevent damage**, and the key points to remember are:

- Birds invade sweet corn fields about three days before picking. Time any control techniques so they are in place **BEFORE** harvest, and stay until harvest is complete.
- Use multiple tactics that reach more than one sensory mode. For example, combine scare-eye balloons with auditory repellents like shell crackers or distress calls. This is likely to be more effective than using one tactic alone.
- Move devices frequently. Birds can learn and become habituated to any device that is used for a long time in one place.
- Good insect control will reduce the corn's attraction to birds. Birds eat insects, which are good, but they also like succulent grains of sweet corn and apparently can't tell the difference.
- Use enough devices to get the intensity of deterrence that you need. One scare eye balloon per field won't do it. Eight or 10 or 12 will be fine.
- Provide an alternative feeding place to the crop you want to protect. In corn, let birds scavenge in the block you just harvested. After harvest, scare devices can be removed from one block and concentrated in the next block. A method that some growers say works is to rotary mow or disc the interior blocks of the previously harvested fields. Birds like to feed on the ground because it is easier than clinging to an ear, but they prefer perching nearby for protection and rest.

Below are a number of devices and tactics that growers can use. *(Note: The supplier contacts were accurate a year or two ago, but it is possible that some have changed; I did not have time to call them to check. There may be other suppliers; no endorsement is implied or intended by inclusion on this list, or lack of endorsement from not being included on the list. RVH)*

**Visual scare devices:** Eyespot balloons and reflective mylar ribbons are effective and fairly economical for small fields. Many growers are now using these silent deterrents and the general feeling is that with variety and timing of use these methods are fairly effective. Growers report that the following methods make balloons more effective: Use at least 8 balloons per acre, place them in the field several days before harvest, and leave the previous block standing, without balloons, to allow birds to feed in older corn. Predator models act in a similar way. These are available from many agricultural suppliers and can also be found online.

**Mirrors:** A device with a rotating pyramid of mirrors, described in the May 27 newsletter for preventing crow damage to seedling corn, can also be used on a platform to prevent harvest damage. The trade name is the "Peaceful Pyramid Bird Scarer" and a local distributor is Fenant Farm Machinery, 545 West Hill Rd., Troy, NH, 603-242-6417.

**Auditory Scare Devices:** Exploders are gas-fired cannons placed in the field and fire with automated discharge timings. These can be quite affective. Cannons are available from some agriculture supply sources. Do check with your farm neighbors and the local police to let them know what you are going to do. Cannons are very loud.

**Shell Crackers:** Are 12-gauge shotgun shells in which the lead shot has been replaced with a bulldog firecracker. When fired from a shotgun, this firecracker travels 75 to 150 yards and explodes in the air with a loud report. Use a single shot, inexpensive 12-gauge shotgun, as the loads are very corrosive. Firing a few rounds early and late in the day will unsettle birds. Federal permits are not required. Again, notify local police and neighbors to let them know what you are doing. Check on local town ordinances. For a more detailed fact sheet on shell crackers, contact Laura Henze at the APHIS Animal Damage Control Office (413-253-2403).

**Three sources for shell crackers:** Reed-Joseph International Co., P.O. Box 894, Greenville, MS 38702, (800) 647-5554; Margo Supplies Ltd., Site 20, Box 11, RR#6 Calgary, Alberta, Canada T2M4I5, (403) 285-9731; Sutton Ag Ent., 1081 Harkins Rd., Salinas, CA 93901, (408) 422-9636.

**Distress Calls:** Recordings of distress calls or the calls of predatory birds, which repeat at regular or random intervals and operate on battery or solar-power, can be quite effective. Because flocking birds are very responsive to the signals from others in their flock, a distress call from one bird is a sign to all the others that an area is unsafe. The sources listed above also sell auditory and visual frightening devices, and here are others: Weitech/JWB Marketing, LLC, 101 Hurlbut St., Westwood, NJ, 07675, 1-800-343-2659; Bird Busters, 300 Calvert Ave, Alexandria, VA 22301, (703) 299 8855; Bird-X, Inc, 300 Elizatbeth Ave., Chicago, Ill 60607, (800) 662-5021; [http://www.pestproducts.com/bird\\_repellents.htm](http://www.pestproducts.com/bird_repellents.htm); Gemplers', 100 Countryside Dr., PO Box 270, Belleville, WI 53508, (800) 382-8473.

*R. Hazzard, with information from Laura Henz, APHIS, & Alden Miller, formerly UMass Extension.*

## SWEET CORN

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**Corn Earworm** flights are staying high in the Southeast, and growers should be on a 3-day schedule. In Central and Northeastern Mass numbers are lower this week, calling for a 4 or 5-day schedule (if low temperatures continue, with daily highs 80 or less, spray intervals can be extended one day).

Connecticut River Valley captures call for a 4-day schedule.

The Berkshires and Southern Vermont have low counts (0 or 1) and can relax to a weekly spray schedule based on **European Corn Borer** activity. Corn borer flights are high and new borer larvae are starting to show up. Scout any blocks still in pre-tassel, and keep up a weekly spray on silk to prevent direct entry into the ear.

**Pepper Growers:** Be sure to apply first ECB sprays this week!

**Fall Armyworm** arrived this week, and is likely to show up in pretassel scouting. Effective materials vs. corn earworm include Larvin, Warrior, Baythroid. Some growers report good success with Lannate but others have problems, probably because it is a short-residual material. Spintor has been shown to work well when CEW captures are moderate (<10 per week) and is excellent vs. ECB. **Organic growers:** see previous newsletter information on the oil direct silk method.

*Special thanks to J. Golonka, D. Rose, D. Dumaresq, J Mussoni, D. Riggs, P. Westgate, A. Duphily, P. Willard, R. Pestle for weekly trap counts.*

**CORN EARWORM THRESHOLDS**

Moths/Week	Spray Interval
0 - 1.4	No spray
1.4 - 3.5	6 days
3.5 - 7	5 days
7 - 91	4 days
Over 91	3 days

Note: Spray intervals can be lengthened by one day if daily maximum temperatures were below 80° F for the previous 2-3 days.

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 is R. Hazzard if none is cited.

**Sweet Corn Trap Captures & Scouting Data August 1 - 8, 2002**

Town	Date	ECB Z1	ECB E2	TOTAL ECB	CEW	FAW	% PT
		Iowa	New York				
<b>Berkshire Region</b>							
N. Bennington, VT	August 1**	22	0	22	0	-	-
Sheffield, MA	August 8	Trap Down	1	1	1	-	-
<b>Conn. River Valley North to South</b>							
Walpole, NH	August 6	2	0	2	1	0	6 %
Plainfield, NH	August 6	5	10	15	1	0	12 %
Westminster, VT	August 6	0	28	28	1	10	1 %
South Deerfield	August 7	7	28	35	3	-	-
Whately	August 7	2 *	108	110	( in peppers)	-	-
Sunderland	August 7	0	23	23	8	-	-
Hatfield	August 7	3	89	92	7	-	-
Hadley #1	August 7	9	23	32	2	-	-
Hadley #2	August 7	67	81	148	7	24	--
Feeding Hills	August 7	25	18	43	10	6	0%
<b>East/Central MA, North to South</b>							
North Andover	August 3**	7	0	7	8	0	0%
Ipswich	August 8	3	4	7	7	0	0%
Dracut	August 8	4	28	32	2	--	
Lancaster	August 5	12	5	17	7	0	0%
Still River	August 6	2	3	5	1	-	-
Concord	August 5	2	11	17	0	0	0%
Leicester	August 6	1	7	8	2	0	3%
Northbridge	August 6	10	15	25	2	0	0%
Belchertown	August 8	2	2	4	8	3	-
Dighton	August 7	0	23	23	55	-	-
Rehoboth	August 6	3	13	16	87	-	-
Sharon	August 8	3	13	16	14	-	-

**Abbreviations:**

ECB Z1: European corn borer Z (Iowa, I) strain; ECB E: European corn borer, E (New York, 2) strain.  
 CEW: Corn earworm; FAW: fall armyworm.  
 % PT: Percent of pre-tassel corn (unsprayed) with ECB or FAW caterpillars present, based on scouting 50 to 100 plants.  
 \* Trap fell over. \*\* NOTE captures are from last week.

Where trade names or commercial products are used, no company or product endorsement is implied or intended. Always read the label before using any pesticide. The label is the legal document for product use. Disregard any information in this newsletter if it is in conflict with the label.