



# VEGETABLE IPM MESSAGE

AUGUST 2, 2001

VOLUME 12, NUMBER 12

## CROP CONDITIONS

Last week gave us a welcome ½ inch of rain around much of the state, with the Southeast receiving up to 3 inches. More rain is needed, and irrigation is a high priority on most farms now. Fortunately for sweet corn growers, the need to spend time on the sprayer has been minimal. That may change as corn earworm trickles in to the region and European corn borer flight gains momentum, but so far corn insect pressure remains low. Cool nights have slowed growth and ripening, especially in higher areas where night temperatures dropped into the forties. Tomatoes are ripening in earnest, pepper and eggplant harvest is underway, but growers are reporting that these are all a week or more late.

Insect pressure is generally low. Leafhopper is causing damage in lettuce. Armyworm traps sited in Stow, South Deerfield, and Westminster, VT have caught no moths. This means a second-generation flight is not threatening another outbreak.

## ELECTRIC FENCE FOR DEER: ONE GROWER'S COST FIGURES

Is it cost effective to put up two-strand electric fence for deer control? Will it keep deer out? I recently talked with a grower in central Massachusetts whose pumpkins and squash have suffered serious deer damage in past years. For the second year he has installed electric fence in his fields and is very happy with the results. Recently he set up fence for a 4-acre field. Here are his costs:

\$200 - solar charger

\$30 - corner posts (5-foot T-post for strong corner support)

\$30 -insulators

\$70 -wire (17 guage wire)

\$120 -rods for supporting fence. He buys 3/8 inch solid round metal rods and has them cut to length, \$1 each. Spaced 25-30 feet apart.

**Total materials cost: \$450, or \$112.50 per acre.**

**Total labor to install: 2 workers, half day.**

He places the strands at 18-20 inches and 48 inches. He baits it right away with peanut butter in heavy aluminum foil squeezed onto the wire, about 12-14 baits for four acres, placed on the sides near the woods where deer would enter the field. He finds that baiting once is enough, since deer learn to avoid the fence once they contact it, and he gets fence up before they start feeding in a field.. His experience with this fence: *deer do not cross it.*

All parts will be reused next year except the wire, which he discards because it is lightweight and tangles easily.

How many pumpkins (made unmarketable because of one deer bite) does it take to recoup the investment of less than \$150 per acre?

--R Hazzard

## TOMATO

If night temperatures drop into the forties, tomato flavor may be affected. If cool nights < 50 F are expected, picking at the breaker stage and allowing fruit to ripen inside may result in better flavor.

As the season progresses, tomatoes tend to show more symptoms of bacterial and fungal diseases. It can be difficult to identify tomato diseases from field symptoms -- but it is important, since management choices will be different depending on which disease is present. The following paragraphs describe symptoms of key diseases that are currently being found in tomato fields:

**Early blight**, caused by the fungus *Alternaria solani*, is characterized by brown to brownish-black lesions on foliage which form distinctive concentric rings as they enlarge. These lesions may be surrounded by a yellow halo. The lesions tend to form on older leaves first and work their way up the plant to the newer growth. These symptoms eventually grow to cover the entire leaf and under favorable conditions may lead to defoliation, which will reduce yield. Tomato fruit can be infected as well; fruit lesions are dark brown and leathery, and may be covered by a velvety mass of black spores. Plant stress increases severity, and adequate nitrogen and water can reduce it. Recent dry conditions, low humidity and cool nights mean low risk of early blight. Ten to fourteen day spray intervals should be adequate.

**Septoria leaf spot**, caused by the fungus *Septoria lycopersici*, develops under similar weather conditions as early blight; as a result, the diseases often appear together in the field. However, the symptoms are distinct. Symptoms from Septoria infection appear as numerous small tan spots surrounded by brown tissue; small black pepper-like fruiting bodies, called pycnidia, form in the center of each spot. Septoria spots are usually more rounded than spots caused by bacterial diseases. Infected leaves will turn yellow, then brown, and eventually wither and fall off, also resulting in reduced yield. Fruit is not directly infected by the fungus.

Alternating sprays of Bravo with Quadris can provide good control of both early blight and Septoria. Organic growers should use copper to help control these diseases. Remember that you are protecting healthy tissue. As the plant grows, new tissue is exposed that will need protection. Spray before there is significant crop injury if you want good results.

**Bacterial canker**: typical symptoms on foliage are "scorching" of leaf margins -- brown, crisp edges of the leaves, with a thin, yellow chlorotic band inside the burned tissue. This "secondary infection" is what we see most often. Fruit may have "bird's eye" spots, small raised scars with a tiny brown center surrounded by a white halo. Symptoms of systemic infections include stunting, wilting (especially one half of a compound leaf), development of open stem cankers and fruit lesions. Canker can be seed-borne. It will be carried over in non-rotated fields for at least one year.

**Bacterial speck**: Symptoms of speck are tiny black spots on leaves, which soon develop a yellow halo. Small black specks can also be seen on fruit. Leaves with a lot of spots usually turn yellow and fall off. This disease is seed born and when wet weather comes along, the disease can really get going. Splashing water from heavy rains will spread the disease easily. When the leaves are wet, bacterial speck is easily spread by tractors or people as well.

If either of these bacterial diseases is present, applications of copper on a weekly schedule are recommended to reduce the spread of the disease. If possible, applications should be made with a boom sprayer, as an airblast sprayer can spread the bacteria to new locations in the field. If possible, harvest infected fields only when they are dry to avoid spreading the disease.

No **late blight** has been reported in the region.

*R. Hazzard & J Howell, with input from Vt, Ohio and NYS*

## CRUCIFERS

---

**Cabbage aphids** are being reported. They can move into new plantings at the seedling stage, or build upon older plants. These are gray-green aphids with a waxy coating that makes them appear whitish gray. Colonies tend to form in younger, upper leaves, in cabbage heads, between cauliflower curds, or in long-season crops such as Brussels sprouts. Numbers tend to build in the fall. Large colonies can stunt plants or cause curled leaves, and will contaminate harvested parts. Biocontrols (predators and parasites, and a fungal pathogen)

often keep colonies under control; however, if numbers are building, insecticides may be needed. University of Connecticut recommends a threshold of 10% infested plants in cabbage, broccoli, cauliflower and Brussels sprouts after heads or sprouts begin to form. Dimethoate or Metasystox are effective options in many crucifer crops, but note days to harvest and specific crop restrictions. Consult the *New England Vegetable Management Guide* for further recommendations. Insecticidal soaps are capable of reducing cabbage aphid. Soaps must contact the pest to be effective and have no residual activity once they have dried. Several applications may be needed. For chemical controls, a single application of a systemic insecticide may provide better control than multiple applications of a contact insecticide because the insects tend to be hard to reach.

**Caterpillars** can be controlled with the use of Bt's or Spintor and continued use of these products will help to bring predatory insects back into the field. Sample fields simultaneously for CL, DBM and ICW. Plants should be treated when 35% of cabbage plants are infested, prior to heading, 15% for fresh market cabbage or broccoli during heading, and 10-15% for greens. Infested means just one or more caterpillar per plant! Pictures and fact sheets on the different worm pests of cole crops can be found on the web at <http://www.nysaes.cornell.edu/recommends/>.

The third flight of **cabbage maggot** should start soon and can be damaging in late-season crucifers, especially root crops. Examine your plants at the stem and soil interface for tiny (1/16" long) bright white eggs. Because of the current hot, dry conditions we should not have a problem with this generation of cabbage maggot. It is cool wet conditions that favor egg and larval survival. If eggs are found Lorsban can be applied to transplants and direct seeded plants that have not already been treated. Direct spray to base of plant.

**Flea beetle** activity continues to be strong. Last year in fields where there were succession crops of brassicas, we saw high

flea beetle numbers and damage to new seedings into August. However, where succession crops have been grown all season, it is likely that the overwintering beetles produced a successful second generation which is now emerging as adult. Eggs are laid in the soil near the host plant, and flea beetle larvae feed on roots. Though the larval feeding is generally not harmful to crops, the newly emerging generation of adult beetles can be.

Growers who avoid crucifers during May and June may be able to put in new plantings now without having a problem with beetles. Where there was no host crop present earlier in the season, beetles were not able to reproduce in the field.

We are finding some situations where crops have been rotated and populations are still high. For example, crucifers were not grown at the South Deerfield Research Farm for 4-5 years, but brassica greens were heavily chewed by flea beetles. This may be due to crucifer weed hosts in fallow areas, which harbor populations of flea beetles.

*-R Hazzard, M Yates & D Riggs, input from Ohio and NYS*

## CUCURBITS

---

There is a wide range in maturity for pumpkin and butternut – early, vigorous crops have some full sized fruit, while later crops are just beginning to flower. Early crops may still be setting fruit on the same vines. In general, fruit set in vine crops appears to be good. Hot days last week caused abortion of female flowers in some fields – these flowers never opened before aborting. Females further down the vine are fine and setting fruit or are ready to open in the next day or two.

**Septoria leaf spot** is being found in butternut squash.

**Bacterial wilt** is causing some plants or vines to drop. Some growers report that vigorous efforts to control cucumber beetle seems to have paid off, with less wilt evident. Fungicide schedules should continue for powdery mildew and black rot, but intervals can be extended due to dry conditions.

*--R Hazzard & D. Riggs*

## SWEET CORN

---

**Corn earworm** numbers remain astonishingly low. Numbers crept up to 2 in northeastern and central Mass, and up to 10-11 per week on the southeastern coast. Growers who are watching traps --and trusting them -- have saved a lot of time, cost, and energy in the past 2-3 weeks! The second European corn borer flight is unusually slow to build up, probably because of cool night temperatures. When captures exceed 5 per week, weekly applications on silking should begin to avoid direct infestations with ECB in the silking stage. Watch for **sap beetles**, which can cause damage to silks and kernels. **Aphids** are building up in some fields. Warrior, Lannate and Asana can suppress aphids if there is direct contact of spray with colonies.

## SWEET CORN TRAP CAPTURES AND SCOUTING DATA JULY 27-AUGUST 2

| Town                                     | Date     | ECB Z1 | ECB E2 | TOTAL ECB | CEW | % PT |
|------------------------------------------|----------|--------|--------|-----------|-----|------|
| <b>Berkshire Region</b>                  |          |        |        |           |     |      |
| N. Bennington, VT                        | July 26  | 3      | 0      | 3         | 0   | --   |
| Stephentown, MA                          | July 30  | 2      | 0      | 2         | 0   | --   |
| Sheffield                                | July 25  | 1      | 0      | 1         | 0   | --   |
| <b>Conn. River Valley North to South</b> |          |        |        |           |     |      |
| Plainfield, NH                           | August 1 | 0      | 0      | 0         | 0   | 12%  |
| Hatfield                                 | July 30  | 3      | 0      | 3         | 0   | 0%   |
| South Deerfield                          | August 2 | 0      | 2      | 2         | 1   | 0    |
| Hadley                                   | July 31  | 2      | 6      | 8         | 0   | --   |
| Amherst                                  | July 30  | 1      | 1      | 2         | 0   | --   |
| Southwick                                | July 31  | 1      | 0      | 1         | 0   | --   |
| Feeding Hills                            | July 30  | 2      | 0      | 2         | 0   | 0%   |
| Cromwell, CT                             | July 31  | 0      | 1      | 1         | 0   | --   |
| <b>East/Central MA, North to South</b>   |          |        |        |           |     |      |
| Ipswich                                  | July 31  | 1      | 0      | 1         | 0   | 0%   |
| Dracut                                   | July 31  | 0      | 8      | 8         | 1   | --   |
| Stow                                     | August 1 | 0      | 3      | 3         | 2   | --   |
| Bolton                                   | August 2 | 1      | 0      | 1         | 2   | --   |
| Sutton                                   | August 2 | 0      | 1      | 1         | 2   | --   |
| Monson                                   | August 1 | 0      | 0      | 0         | 0   | 0%   |
| Still River                              | August 2 | --     | --     | --        | 0   | 0%   |
| Leicester                                | August 1 | 1      | 0      | 1         | 0   | 0%   |
| Millis                                   | July 31  | 2      | 8      | 10        | 1   | 0    |
| Hopkinton                                | July 31  | 2      | 4      | 6         | 1   | 0    |
| Seekonk                                  | August 1 | 1      | 6      | 7         | 11  | 0    |
| Swansea                                  | August 1 | 3      | 9      | 12        | 4   | 0    |
| Rochester                                | July 31  | 1      | 21     | 22        | 10  | 0    |
| Rehobeth                                 | August 1 | 2      | 24     | 26        | 6   | 0    |
| Little Compton, RI                       | July 31  | 1      | 2      | 3         | 2   | 0    |

*Vegetable IPM Message*, Ruth Hazzard, Editor. The *Vegetable IPM Message* is published weekly from May to September and includes contributions from the UMass Extension Vegetable Program faculty and staff, growers, and private IPM consultants.

*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.*