

Vegetable IPM Message

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Crop Conditions

Harvest of lettuce and greens has begun, while harvest of asparagus, rhubarb and radishes continues. Clear weather last week allowed growers to catch up on transplanting, seeding and other field work. The statewide heavy rains last Tuesday brought 3-4 inches throughout the state, returning everything to a soggy state. Total rainfall for the month of June is reported to be 6 inches for Boston and 4 inches for Worcester. In heavy soils, plowing and planting are still delayed. Watch for soilborne diseases which become active under waterlogged conditions -- phytophthora, pythium, sclerotinia white mold. Cultivations may help loosen and aerate soils if they are not too wet to work.

Whenever a major weather event affects agriculture, the news media is sure to look for a story. Its great to have agriculture in the news, but bad news can be bad for business. Its important to give the message to the public that our farms are getting ready to provide ample fresh local food despite the weather. Recently I saw a TV news story on two nearby farms -- one which had its entire crop of greens, lettuce and scallions, and newly set pepper and tomato transplants totally destroyed in localized fierce hailstorm last Friday. These farmers pointed out that they are busy replanting, they'll be back in business with their markets in 3-4 weeks, and if a hailstorm had to happen this was the best time because they can still get seedlings to replant. The other farmer pointed out that the lettuce harvest is great, and people might just have to wait a bit longer than usual for the favorite local corn and tomatoes. If the media contacts you, your spirit and determination can make good news out of bad!

Nitrogen: It is virtually certain that nitrogen has been leached by the recent rains. Soil organic matter will likely release some more nitrogen, but the only way to assess this is to use a pre-sidedress soil nitrate test after the soil has dried out a bit. In the meantime, an application of 30 to 50 lb/A as soon as possible would be appropriate for most crops.

-R. Hazzard, J Howell, M Yates

TWILIGHT MEETING SERIES STARTS JUNE 26 AT AMATO FARM

This summer's twilight meeting series will begin on Monday, June 26, 5:30-8:00 p.m. at Amato Farm, 11 East Street, Upton, MA.

This 40-acre vegetable and small fruit farm was started in 1975. It has a pick-your-own operation with strawberries, raspberries, blueberries, flowers, pumpkins, and Christmas trees. Mark will talk about pest management in these crops, with an emphasis on weed control in small fruit.

Most produce is sold through the retail stand, which was built in 1987 and has been continually improved and updated since then. In addition to the production and retailing of vegetables and small fruit, Mark Amato will also talk about his farm birthday parties and a Harvest Celebration in the fall that attracts 3,000 - 6,000 people.

Mark also makes use of trickle irrigation in blueberries, raspberries, tomatoes and some cucurbits. We will have the UMass Extension Trickle Irrigation Trailer on site. This will allow hands-on demonstrations on how trickle irrigation can be used with many different crops.

Directions to Amato's: Take 495 (North or South) to Exit 21B. At the end of the ramp go through the light. At the top of the hill turn left onto School Street (approximately 2 miles from light). Farm is 1/4 mile down the road. Park on right.

Also note: New Hampshire twilight meeting
Tuesday, June 13, 2000
5:45 PM
Nesenkeag farm
Litchfield, NH

For more information call: (603)862-3200

Crucifers

Flea beetles are still active and moving into new plantings. We are seeing less feeding damage on collards, kale and cabbage as they reach cupping or develop full sized leaves, even though beetles are still active in the field. In rotated fields where crucifers have not been grown recently, beetle numbers are lower than in crucifers which are close to last year's plantings. In May nearly all beetles seen were the solid black **crucifer flea beetle**, but in the past two weeks we have also seen the **striped flea beetle** which has a crooked, light tan stripe on each wing cover.

Imported cabbageworm and **diamondback moth** were present in scouted fields. It is especially important to check cabbage as it forms heads, and greens as the marketable leaves develop. If 20% of heading cabbage or 15% of greens have one or more larvae, controls are needed. Using a material that is easy on natural enemies (spinosad, Bt) will help keep down aphid problems.

SWEET CORN

Planting schedules have been thrown off not only by wet weather but by long emergence times for each plantings. Many growers schedule plantings according to the germination of the last planting, which has meant longer intervals between plantings. Many growers are one or two plantings behind. What is up is growing well, though often rather slowly. This year, row cover has made a big difference. At one farm in Southeastern Mass, corn was planted in three blocks, on the same day, one with remay, one under plastic, and bare ground. The remay is still on and the corn is starting to tassel. The plastic has been removed and the tassels are just visible and the bare ground corn is way behind.

European corn borer flight is underway and capture numbers are rising. The E strain generally becomes active before the Z strain, and higher captures reflect that.

SWEET CORN CAPTURES June 1-7

Site	Date	ECB I (Z)	Ecb II (E)	Total ECB	CEW
South Deerfield	6/8	5	7	12	--
Millis	6/6	8	108	116	0
Seekonk	6/7	0	68	68	1
Swansea	6/7	45	8	53	0

The following excellent description of ECB scouting and thresholds is from Abby Seaman of NYS (Western New York Sweet Corn Pheromone Trap Network, June 6, 2000):

Corn should be first scouted for ECB at early tassel emergence. Even at location with high ECB populations, insecticide applications to whorl stage corn have not resulted in improved control when compared with one or two well-timed applications at tassel emergence. Larvae are more exposed to the insecticide application when the tassel emerges and starts to open up than they are when feeding in the whorl. Larvae will leave the tassel as it opens up and no longer provides a moist, protected feeding environment, and move down the plant looking for protected places to feed. Insecticide applications need to be timed to kill larvae before they bore into a new feeding location where they will be again protected from insecticide applications. In fields with uneven development, two applications may be necessary, one when approximately 25-50% of the tassels have emerged, and again when 75% of the tassels have emerged, if the field is still over threshold.

The threshold for ECB at tassel emergence is 15% infested plants. Look down into

emerging tassels for tiny larvae or frass. Before any insecticides have been applied, scouting is fast and easy because any sign of feeding is an almost sure sign of live larvae, and it's not necessary to spend time finding the larvae. After the initial application, feeding damage may be from a larva that has already been killed, so finding the larva is more important for an accurate count.

--R. Hazzard, M. Yates, A. Seaman

POTATO

Colorado potato beetles (CPB) have been colonizing potato fields and laying eggs. No egg hatch is reported yet, but hatch can be expected soon. In non-rotated fields, beetles move in from the field edges where they overwinter, feeding heavily on border rows. Border treatments, if timed to catch the beetles in border rows, can reduce the population before beetles move into the whole field. Scout fields to estimate numbers of adults and egg masses per plant.

In recent years growers have relied heavily on imidacloprid (Admire or Provado) for CPB control. There are several new, very effective products available and growers should make use of their range of choices to reduce resistance development for any single product. CPB is renowned for rapid resistance development and we are seeing this now wherever imidacloprid has been used for several years in the same field. In 1999, beetles were collected from eight commercial potato fields in Massachusetts in June and again in August. All beetles were less susceptible to imidacloprid than the laboratory colony and most resistant populations were **6 times** more tolerant than the lab colony in June, and 22 times more tolerant in August. The highest levels of resistance were on farms where Admire had been used at planting for several years, intensifying selection for resistance. Conserve this product for the long term by rotating with other materials! Here are some options:

Spinosad (SpinTor) gives excellent control of all stages of CPB at the 4.5 fl oz rate. For a heavy population, two applications about 10 days apart, with the initial application when third instars occurs, will control the first generation. Spintor has the advantage that it will control adult CPB and also European corn borer if a grower has that pest on early potatoes.

Abamectin (AgriMek 0.15EC) is mainly a contact material which controls larvae. In trials conducted on by Dale Moyer on Long Island, the first application provided better control than the second application, possibly because of better contact and coverage when the plants are smaller. Because the product is very expensive, lower than label rates were tested and it was shown that the 5-6 fl oz rate per acre is very effective in commercial fields. In research plots they obtained effective control at 4 fl oz. The lowest labeled rate is 8 fl oz.

Bt tenbrionis (M-Trak, Novodor) or ***Bt tenebrionis/kurstaki*** (Raven) control small larvae, through the third instar. Time applications to begin when 30 percent of the eggs

have hatched. Where fields are densely populated and eggs are hatching continuously, reapply every 5 to 7 days. Unfortunately for organic producers, these products are not approved for most certification programs, including Mass. NOFA.

Management strategies for CPB should use crop rotation and alternate classes of insecticides in each generation of the beetle. For example, use abamectin for the first spray after larvae hatch, followed by spinosad. Or, use spinosad which controls adults and all larval stages for the first spray, followed by a Bt to kill emerging young larvae.

See *New England Vegetable Management Guide* for more details.

Late Blight. We will not be providing late blight forecasts from BLITECAST this season, but will provide general recommendations on disease management. Conditions have been favorable for late blight - cool with long moist periods --therefore fungicide coverage is recommended on potatoes four inches tall or more.

-D. Moyer(NYS), D. Ferro, R. Hazzard.

CUCURBITS

Emergence has been slow in cool, wet soils, though last week's warm weather helped some seedlings pop out of the ground. **Striped cucumber beetles** have been active whenever we have warm days. Fields should be scouted to estimate number per plant (25 plants in groups of 5, sampled throughout the field, give a good estimate). For wilt-susceptible plants (cucumber, pumpkin, gourds, summer squash, zucchini) use a threshold of one beetle per two plants.

DISEASE DIAGNOSTICS UPDATE

Greetings from the Plant Disease Diagnostic Lab. The lab welcomes our newest member, Brian Lipka, who is here to carry out the 2000 Cucurbit Disease Survey. Don't hesitate to send in your diseased cucurbit samples to Brian here at the lab (Rm 109, Fernald Hall, UMass, Amherst, MA 01003)

It's been an interesting week here at Fernald Hall. We received several watermelon and cucumber seedlings that were diagnosed with damping-off caused by *Pythium*. We were able to trace the pathogen to an unpasteurized growing media that was used for cucurbit transplants. Another pathogen, *Colletotrichum*, which is normally seen affecting cucurbit and other fruits later in the season, also caused damping-off of watermelon seedlings on another farm.

Several leaf samples (tomato and cucumber) exhibited what appeared to be nutrient deficiency symptoms (yellowing, mottling and marginal necrosis), probably attributable to the cold wet soils interfering with uptake of important nutrients.

For tobacco growers, Alliete was section 18-approved for treatment of blue mold in MA.

This is not our first choice for blue mold, but if blue mold occurs early and conditions are favorable, growers will exceed the use limit for Acrobat, and will need to resort to another fungicide. Call Dr. Rob Wick at the lab (545-1045) with any questions.

--Jeff Lerner

Slugs

Longlasting wet conditons have been favorable for slugs, which will feed on greens of all kind as well as other vegetables. The following is from Dr. Ron Hammond, reprinted from Ohio CORN newsletter, 5/30/00:

Slug damage has been reported from both corn and soybean fields in many parts of the state. Growers should be checking their fields for slug problems, especially in those fields with a past history of problems. If injury is severe and the plants are not outgrowing the damage, treatment might be necessary. The most common molluscicide for growers in Ohio is Deadline MPs. If an application is made with this bait, it should be broadcast over the field at 10 lbs per acre. Even coverage is essential to get good control. At 10 lbs per acre, you should get about 4-5 pieces of bait per square foot. Deadline MPs will hold up very well through rainfall. Our tests indicated that MPs will not breakdown, even with 3 plus inches of rainfall. An older formulation, Deadline Bullets, may still be available but should be used at a higher rate because it has a larger particle size and fewer granules pre square foot.

(Note for Vegetable growers: Deadline MPs (mini-pellets) are registered for use on most veg crops at a rate of 20-40 lb/A)

-adapted from B. Precheur, VegNet, Ohio State University, June 7, 2000

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. Authors of articles are noted; author is R. Hazzard if none is cited.

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