



VEGETABLE IPM MESSAGE

JULY 31, 2003

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CROP CONDITIONS

Garlic is now being harvested as well as beets, melons, lettuce, radish, cabbage, cauliflower, broccoli, squash, radishes, carrots, beans, celery, tomatoes, eggplant, peppers and sweet corn. The quality and yield is good to excellent. The weather this week has been great for growing, picking and weeding. The state is much drier this week, and night temperatures are lower helping to reduce the disease pressure. It's been so dry this week that growers are hoping for more rain, which is predicted for this weekend. In the field the dry weather has made weed control easier than it's been, and growers are finishing up renovating strawberries, harrowing old crops and cleaning up field edges. Except for the diamond back moth and flea beetles, insects have been in a brief lull, but the pressure has increased significantly this week for corn earworm, and the second flight of European corn borer has started. See article below for discussion of ECB control in peppers.

--P Westgate with contributions from, J Golonka, E Droescher, D Kaplan

PEPPERS: EUROPEAN CORN BORER

The second generation European corn borer flight is beginning. European corn borer moths lay eggs on the underside of pepper leaves, and newly hatched borers move to fruit, where they tunnel under the cap. Once inside the fruit insecticides cannot reach them, so if captures are above threshold in your field, pepper fruit should be protected with insecticide applications on a regular schedule from now until ECB activity declines.

Insecticide applications should begin a week after the weekly catch exceeds 7 moths and fruit are present on the plant. The threshold was exceeded this week at farms in the CT river valley, meaning that valley growers who spray should begin early next week. See the [2002/2003 New England Vegetable Management Guide](#) for recommended materials.

We have often seen large differences in captures between farms within regions. Some of this variation may reflect trap placement. Ideally, they should be in an open, weedy area near the pepper field, with the base at the top of the weeds. But captures also reflect actual differences in ECB populations between farms. As usual, it is best to have traps on your own farm - your pest conditions may differ from your neighbors.

Pepper maggot activity has been reported in MA this week. Activity can be detected by looking for oviposition stings (dimples in fruit), which are especially visible on cherry pepper. The maggots cause physical damage by tunneling inside the placenta of the fruit. When ready to pupate, the maggots exit at the blossom end, leaving round exit holes. These holes allow for the entry of pathogens into the fruit, making for a real ugly mess. The use of Orthene™ for aphids or ECB will usually control pepper maggots; however, the use of many selective materials for managing ECB (spinosad or *Bacillus thuringiensis*) will not control pepper maggots.

--Ruth Hazzard, P. Westgate, and A. Cavanagh

PUMPKINS: WHAT YOU DON'T KNOW CAN HURT YOU!

Unknown to most growers, root systems of pumpkins are as large and extensive as the foliage. With many trees, what you see in growth above the soil is matched by root growth below ground. The same situation exists with pumpkins. In a "one-of-a-kind" research project in 1927, John Weaver and William Brunder, botanists at the University of Nebraska, grew many different vegetable crops and excavated and mapped the course of the root systems. They published their work in a book titled "Root Development of Vegetable Crops", published by McGraw-Hill Company, New York. To my knowledge, no one since has attempted such a difficult task.

Vines of 'Small Sugar' pumpkin were about 16 feet long at maturity and the top 12 inches of soil were filled with roots. The taproot of mature pumpkins grew 6 feet deep and had 10 or more lateral branches that extended outward 5 to 17 feet or more. Many of these lateral roots were 2 to 4 feet long, intricately and minutely branched, forming a wonderfully efficient root complex. The second and third feet of soil were also thoroughly filled with roots, with the fourth foot of soil containing many vertically descending roots. Plant size of pie pumpkins may not be as large and vigorous as the jack-o-lantern types. It is probable that root systems of larger pumpkins may be more extensive than those reported in this book.

So what does this mean to the pumpkin grower? Both cultivation and fertility practices must consider the developing root system hidden beneath the surface. Generally, pumpkin roots grow faster than foliage and root extension usually is equal to or greater than the vine spread. If cultivation is necessary, it should be done before the vines run over the ground. Cultivation must only graze the soil surface to avoid root damage. Later cultivation should be avoided entirely and a good herbicide program used for weed control. Pumpkin vines root in the areas between the planted rows and provide "shortcuts" for water and nutrients to enter the plant.

Therefore, pumpkin vines shouldn't be moved around unnecessarily. Broadcasting fertilizer within the space between planted rows may provide nutrition to support the rampant growth of pumpkins and help pumpkin fruits developing on satellite vines quite distant from the main plant.

*-Terry Nennich,
Extension Educator, University of Minnesota
Lake Plains Vegetable News July 2003, Letter 7, Vol. XII*

A FARMERS' MARKET FOR FARMERS

The Great Barrington Farmers' Market (GBFM) is celebrating its 14th season. It is an open air market located at a historic stone railway station just off the main street in Gt. Barrington, MA. GBFM is unique in many ways. One particularly strong attribute is its commitment to participating farmers.

There are currently 25 farm members/vendors. They come from a radius of 50 miles and include farms from "over the border" in NY. There are 4 flower sellers, 5 vegetable stands, 3 fruit vendors and 4 bakers, but only 1 vendor each of meat, honey, pasta, eggs, soup, mushrooms, and handmade chocolates.

This market is 100% producer grown. There is no buying in of products for resale - all food comes from the member farm or kitchen. This agreement was established by the vendors themselves. An elected steering committee carries out an extensive set of by-laws while a paid market manager oversees the smooth running of the market each Saturday.

"Our aim," says steering committee member Susan Minnich, "is to offer a varied and balanced range of products for our customers while supporting market members. As consumer demand rises and more people shop at the market, new vendors of similar products are accepted. We want our members to do well enough to have a sustainable business and stay in GBFM over the long haul," notes Minnich. This commitment makes GBFM a very popular and highly respected farmers' market among local growers and producers.

Vendor fees are \$550 per season, \$325 for a half season, and \$35/day for some vendors trying out a space. The membership fee guarantees a permanent space and supports the market manager, widespread advertising, special events, and site rental. Average weekly sales of individual vendors range from a low of \$300 to a high of \$1200 per vendor space.

Customers are a good mix of year-round residents, second home owners, and summer visitors. They average 350 per Saturday and come from a 10-mile radius. The “market” as it is fondly called is a social magnet and seen as an important part of the larger community. Many customers are regulars who plan a weekly stop at the market for their produce needs, as well as to see friends and neighbors. For all it provides a lively atmosphere of colorful fresh food, friendly vendors, and weekly food-related special activities and events. These include food tastings, local chef demonstrations, and a weekly community table that provides information about local land or agricultural interests. WIC coupons are accepted and welcomed. Kids and dogs seem to find and enjoy the social aspect of the market also.

GBFM is open Saturdays, 9 am-1pm, from May to October. Call Susan Minnich for more information (413) 623- 6446.

-Cathy Roth, Extension Educator

TOMATO: 19TH ANNUAL MASSACHUSETTS TOMATO CONTEST

Please join us for the 19th annual Massachusetts Tomato Contest. This year's tomato contest will be held at the Boston City Hall Plaza Farmers' Market, on Monday, August 18, 2003.

The event is sponsored by the New England Vegetable and Berry Growers Association in cooperation with the Massachusetts Department of Agricultural Resources, this friendly contest is designed to increase consumer awareness of local agriculture.

If you cannot attend the contest on Friday, tomato entries can be dropped off Saturday August 16th or Sunday, August 17th

at one of the locations below. Please contact one of the following representatives to confirm drop-off entry(s). Tomatoes that are dropped off will be brought to Boston for judging.

Drop-off Locations

Please submit a registration form with entries. The registration form is available online at http://www.state.ma.us/dfa/markets/tomato_contest.htm

Southeastern Massachusetts:

Dominic Marini
(508) 378-2546
233 Union St., East Bridgewater

Northeastern Massachusetts:

Arena Farms
(978) 369-3267
Rte. 2, Concord

Pleasant Valley Gardens
(978) 682-9563
255 Merrimack St., Methuen
exit 46 Rt 495, take left off ramp, go 3/4 mile, farm sign on right

Central Massachusetts:

Gove Farm
(978) 537-8640
925 Mechanic St., Leominster

Silvermine Farm
(508) 865-5335
96 Eight Lots Rd., Sutton

Western Massachusetts:

Round Hill Orchard
(413) 562-4985 Douglas Rd., Southampton,
(Rt. 10, Westfield/Southampton Line, 1/4 mile North of The Purple Onion on left).

Schedule of Events

9:00 am to 10:15 am - Tomato drop-off and registration
10:30 am - Judging of tomatoes by panel of experts
12:30 pm- Presentation of awards

Tomato Contest Criteria

Flavor: 10 points possible. The perfect tomato should have a strong tomato taste, be slightly acidic, juicy and fresh tasting with a tender skin.

Firmness/Slicing Quality: 5 points possible. A desirable tomato should have a dense uniform thick wall with many

seed cavities, completely filled with a jelly-like mass. The firmness of the tomato should be such that it will bruise if dropped, yet is not over-ripe or soft.

Exterior Color: 5 points possible The winning tomato has a uniform color, is free of green shoulders and has no evidence of blotchy ripening.

Shape: 5 points possible Tomatoes come in different shapes and sizes, depending on the variety. Their shape should be symmetrical, but most important, the tomatoes in each entry should be uniform in size.

Prizes

First, second, and third place tomato trophies will be awarded in all four categories. Top 5 certificates will also be given in each category.

For more information on the Tomato Contest please contact:

David Webber
(617) 626-1754
David.Webber@state.ma.us
http://www.state.ma.us/dfa/markets/tomato_contest.htm

TOMATO: CATFACING

Catfacing of tomatoes is a disorder that causes the formation of a large scar at the blossom end of the fruit. The severely affected fruit are often also larger than normal, and flatter and rougher in shape. The disorder is common in early-planted tomatoes and has resulted in as much as 40% of the fruit being classed as unmarketable in some of our trials.

Catfacing is brought about by exposure of the tomato plant to cool temperatures at the time the embryonic flowers are just beginning to form. The most effective temperatures are 60-65 degrees F during the day and 50 degrees F at night for at least one week's duration. Colder night temperatures such as 40-45 degrees F are less effective in causing the disorder.

Plants are susceptible to the disorder about four weeks after sowing for the first cluster of an early variety, and susceptibility continues for about one month during which the later clusters reach the same susceptible stage. Thus a tomato plant that has been grown for five weeks in a 70/60 degree F

greenhouse should show no catfacing on its first two clusters, because these were formed under warmer temperatures. If those plants are transplanted into cool weather outdoors, however, later clusters could be catfaced.

Similarly, if a grower uses cool temperatures to harden off tomato transplants before field planting, they could be causing the catfacing with the hardening practice. Harden plants by withholding nitrogen and water.

It should be emphasized that tomato plants are susceptible to catfacing before the flowers are visible on the plant. The susceptible stage begins about 2 1/2 weeks before the first flowers open.

*-Chris Wien,
Dept. Fruit & Vegetable Science, Cornell University
Lake Plains Vegetable News July 2003, Letter 7, Vol. XII*

SPIDER MITES IN VEGETABLES

Spider mites can occur in tomato, eggplant, potato, vine crops such as melons, cucumbers, and other crops. In most instances, infestations are largely confined to drier dusty areas along roads and field margins, although there have been some reports of more extensive infestations. Occurrence is spotty and damage is low to moderate in most cases. There are several species of spider mites that attack vegetables. The red spider mite and the two-spotted spider mite are the most common. The red spider mite is often referred to as red spider, the red mite, or spider mite. Spider mites are favored by hot dry weather, which also aggravates injury by stressing the plant. Leaves become blotched with pale yellow, reddish brown spots ranging from small to large areas on both upper and lower leaf surfaces. If infestation is severe, leaves become pale and sickly in appearance, gradually die, and drop off the plant. Before death the leaves look as though they have been dusted with some sort of powder, which is caused by numerous molted skins of the mites coupled with a depletion of leaf chlorophyll.

Mites generally injure above ground plant parts by removal of plant sap or cell contents with their needle like mouthparts or

stylets. Sap removal can debilitate plants by removing nutrients and water. Removal of cell contents results in leaf injury and fruit scarring. Saliva injected during feeding contains enzymes and other substances that may produce toxic responses in plants, producing discoloration, necrosis or abnormalities on leaves, stems and fruits. Damage is often underestimated since the wounds they make are not apparent to the eyes of the observer. These pests are particularly bothersome in dry weather since they account for added strain on plants, already short of moisture.

Overall plant symptoms caused by either severe or constant attack are characterized by distorted leaves, overall loss of plant vigor (in spite of adequate moisture and nutrition), spotting of leaves, eventual yellowing of the plant or some of the leaves, and in some cases loss of foliage and death. 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.). Spider mites 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 except when just hatched, when they have six legs like insects. Males are oblong in shape while females are more

Almost all types of crops are subject to attack by some species of spider mite. 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.

Spider mites reproduce rapidly under favorable conditions, and control can be difficult. Biological control with predaceous mites that can be purchased commercially is a viable option but must be initiated before populations have a chance to build up. In assessing the need for chemical control, consideration should be given to the age structure of the population. A high nymph to adult ratio signals a population likely to increase, whereas numerous adults may signal a declining population, especially if a disproportionately high number of males are present. If chemical control is deemed necessary, care must be taken to select an appropriate miticide and thoroughly cover the plants. A second application should be applied from five to seven days following the first, to kill mites that were eggs at the first spray. If more than five to seven days are allowed to pass after the first application, new females will have matured and laid eggs again. Therefore, a second spray kills the nymphs before they reach maturity and lay eggs, which in turn would provide for a new generation.

-Ruth Hazzard

TOMCAST UPDATE

This has been a season of ups and downs. First hot and wet, now cool and drier... DSV's accumulated very slowly over the last week mostly due to cooler nights. Dew has kept leaves wet in the evenings and mornings, but temperatures have been too low to encourage disease development. It has taken 15 days to accumulate 15 DSV's (since July 14th).

-Nicholas Connor, Assistant Editor

Table 1: TOM-CAST DSV's for Summer 2003					
Month	Day	DSV/Day	Accumulated DSV	Avg. Wet Temp F	Wet hrs/day
July	17	***	***	***	***
	18	1	67	65	8
	19	1	68	60	14
	20	0	68		0
	21	2	70	68	11
	22	3	73	71	16
*** No data for July 17 due to an equipment error.					
New Data Set					
July	23	0	73	73	4
	24	3	76	68	17
	25	2	78	65	14
	26	0	78	72	2
	27	0	78	65	1
	28	1	79	61	8
	29	1	80	61	13

round. Spider mites live on cell sap, which they draw by piercing the leaf with two sharp, slender lance-like stylets.

SWEET CORN

Corn earworm is a problem in every part of the state except the CT river valley with trap counts above threshold levels in silking corn. Spray schedules should vary between 3-5 days, depending upon your location: growers in the southeast are advised to follow a 3 day schedule, whereas growers in the central part of the state should go with a 4-5 day schedule. See the tables 2 and 3 to determine what is recommended for the location nearest your farm. While the CT river valley farmers can relax their control measures for CEW this week, a weekly spray on silking corn is

recommended in the valley as there has been an appreciable increase in European corn borer captures here this week (11-66 moths per night). In the rest of the state the second generation of ECB has not yet begun or only just started. There are some spots around the state with ECB counts low enough that no sprays are needed in silking corn (except for CEW control). Remember that ECB captures vary greatly from site to site and are very field specific, so consider the history of your fields before commencing a spray program.

Town	Date	Iowa	NY	TOTAL ECB	CEW	FAW	% PT
		ECB Z1	ECB E2				
Walpole, NH	7/31/03	0	3	3	0	0	2%
Plainfield, NH	7/29/03	17	2	19	0	0	21%
Westminster, VT	7/30/03	0	0	0	1	0	2%
South Deerfield	7/30/03	0	3	3			
Whately, MA (Peppers)	7/29/03	2	9	11			
Sunderland	7/30/03	0	22	22	1	22	
Hatfield	7/31/03	10	2	12	6		6%
Hadley	7/30/03	12	54	66	1		
Feeding Hills	7/29/03	0	0	0	6	0	0%
Lancaster	7/31/03	3	5	8	14	0	3%
Still River	7/30/03	0	1	1	55.5	8	
Concord	7/28/03	0	0	0	15	0	4%
Leicester/Spencer	7/30/03	0	0	0	5	0	3%
Northbridge	7/30/03	0	0	0	15	0	6%
Dighton	7/30/03	0	0	0	56	3	
Rehoboth	7/28/03	1	2	3	97	9	
Sharon	7/31/03	1	7	8	184	13	
Tyngsboro	7/28/03	0	0	0	11	0	1%
Blanford, VT	7/29/03				0		
Sheffield, MA	7/31/03	1	0	1			

*Note: Counts in **bold** represent an average count from two traps.*

Also, scout whorl stage and pre-tassel stage corn for actual damage to determine when and if sprays are required (spray at >15% infestation). Fall armyworm is also being captured on many farms. Look in whorl stage corn for tattered leaves with lots of damage and frass. Include this damage in your scout for ECB damage, which is generally less obvious.

-P. Westgate, Extension Research Technician

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	3.5 - 7	5 days
1.0 - 13.0	7 - 91	4 days
Over 13	Over 91	3 days

Vegetable Notes, Ruth Hazzard, Editor. Nicholas Connor, Assistant Editor. Vegetable Notes 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.

We would like to thank the following businesses for their sponsorship of *Vegetable Notes*:

- Crop Production Services**, 25 Elm St., South Deerfield, MA 01373. Phone 413-665-8775. Contact: Mike Barlow. "Profit from our experience."
- Empire Packaging Co.**, 311 North Plank Rd., Newburgh, NY 12550. Phone 800-562-5520. Contact: Dave Enos. "Retail & Wholesale Packaging for the Farm & Orchard."
- Family Farm Life and Casualty Insurance Co.**, 88C Main St., Northboro, MA 01532. Phone 508-393-9327. Contact: Dick Simonian. "Call for the agent nearest you."
- Harris Seeds**, 355 Paul Rd., P.O. Box 24966, Rochester, NY 14624-0966 Phone 585-295-3600. Contact: Karen McGuire. "A grower-friendly company."
- Superior Scale Company**, 154 Grove St., Chicopee, MA 01020. Phone 800-719-9040. Contact: Jerry Gamache. "The farmer's friend."

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.

Join us for an exciting

FIELD DAY

at the University of Massachusetts
Research Farm

River Road (north off Rt. 116), SOUTH DEERFIELD MA

Wednesday August 13, 2003

Crop-Livestock Field Day
Vegetable Crops Field Day
Local Foods Buffet
And
Ag. Business Trade Show

Co-sponsored by
University of Massachusetts Extension
And
Community Involved in Sustaining Agriculture (CISA)

The UMass Crops-Dairy-Livestock program and the UMass-Vegetable Program are working together to bring you a full and exciting field day at the research farm. There will be two opportunities to view field plots and to interact with specialists from the Departments of Plant & Soil Sciences, Veterinary & Animal Sciences, and Entomology. There will be a local foods buffet prepared from food donated by Connecticut Valley farms and prepared by local restaurants and organized by CISA.

There will be a donation of \$5 to \$20 requested to cover the costs of food and the event.

(schedule on reverse side)

11:30 to 2:30 Crop-Livestock Field Tours (First round)

See Below...

2:00 to 7:30 Agricultural Business Trade Show

Trade Show Open

4:30 – 5:30 Local Foods Buffet -- *under the tent*

Food provided and prepared by local farms and restaurants.

Food donated by: River Rock Farm, Brimfield; Golonka Farm, Whately; North Hadley Sugar Shack, Hadley; Riverland Farm, Sunderland. Food prepared by: Apollo Grill, Easthampton; A Bottle of Bread, Shelburne Falls; The Olde Hadleigh Grille, Hadley Deerfield Inn, Deerfield. And more!

Tours of facility and field plots with Extension Specialists

5:30 -7:30: Crop-Livestock Field Tours (Second round) with Plant and Soil Science and Veterinary Animal Science Specialists. *Topics include:* corn hybrid selection, Brassica fodder crops, fall stock-piled grass, soybean for forage and grain, weed control for agronomic crops, demonstration of paddy rice culture, beef and goats livestock programs, nutrient management planning, and alternatives for soil erosion control.

Refreshments will be provided for those attending the noon tour. For more information contact Stephen Herbert (413-545-2250) or email cdl@umext.umass.edu

5:30 -7:30: Vegetable Field Tour with Plant and Soil Science and Entomology Specialists. *Topics for the Vegetable Tour:* Perimeter trap cropping systems for controlling pests in cabbage and butternut; Trichogramma releases for control of European corn borer in pepper and sweet corn; Flea beetles on Brassica crops: biology and management; demonstration trials for flea beetle control with row covers and spinosad; Asian brassicas: top choices from farmer trials; Production methods for water spinach: effects of irrigation rate, plastic, and transplants; Management of tarnished plant bug on water spinach; hoop houses for year round growing. For more information, contact Ruth Hazzard or Nicholas Connor 413-545-3696 (umassvegetable@umext.umass.edu).

Also we will demonstrate the farm's **new irrigation system** with underground lines for trickle and overhead and our new traveler, donated by the Massachusetts Society for the Promotion of Agriculture.

Directions: From I-91 north take exit 24 and turn right at the end of the ramp onto Rts 5 & 10 North. From I-91 south, take exit 24 and turn left at the end of the ramp onto Rts 5 & 10 North. Go north on 5 & 10 a few hundred yards to the traffic light and turn right onto Rt. 116 (toward Amherst). Proceed about one mile through another light and turn left (north) onto River Rd. just before the bridge over the Connecticut River. Go north on River Rd. past a housing development and left through the gate onto the Research Farm. Look for signs. From the Amherst-Sunderland-Hadley area, cross the Connecticut River on Rt. 116 and turn right onto River Rd. just beyond the bridge.

Event will take place Rain or Shine!