



UMASS
EXTENSION



Vegetable Notes

For Vegetable Farmers in Massachusetts

Volume 18, Number 13

August 2, 2007

CROP CONDITIONS

Hot, hazy and humid with frequent thunderstorms has been the weather pattern, and there is no end in sight. This week saw much warmth, combined with some timely showers in most places. The cool weather of the prior week was soon forgotten and crops are now thriving again. Just about everything is being harvested with peppers and eggplants either very close or already started. People are continuing to harvest summer squash and zucchini. Most winter squash and pumpkin plantings are vining out nicely. The relatively dry weather means lower than normal disease pressure, although we have seen powdery mildew in most fields and plectosporium and phytophthora in a few isolated locations. Fields that have not been sprayed should be monitored closely, especially for powdery mildew and plectosporium. Powdery mildew of cucurbits is one of the few diseases that doesn't need rain or a film of water to spread, so you should keep a close eye out for it even if the weather seems dry. Downy mildew has not yet been reported on cucurbits in MA (see update for more details).

Leafhoppers are being seen in peppers. This is really uncommon; you don't normally see leafhoppers in peppers. However, we have seen common leafhopper damage such as mottling and stunting. Damage has been seen in pepper fields that are adjacent to bean and eggplant fields which are common hosts for leafhoppers. If you are seeing leafhopper damage in your pepper fields, you may use products that control European cornborer to control leafhoppers as well.

DOWNEY MILDEW UPDATE

Downy mildew has not been seen in MA yet, you can get the most current forecast at: <http://www.ces.ncsu.edu/depts/pp/cucurbit/forecasts/c070731.php>

BLUE MOLD DETECTED IN MASSACHUSETTS

Blue Mold was confirmed in the Connecticut River Valley on shade tobacco in two fields in Westfield, MA on July 31, 2007. Secondary lesions were present in one field indicating that the disease has been present for 10-14 days. The potential for loss is still large if wet, humid weather occurs as this pathogen spreads very quickly. Fungicides registered include Quadris only in a tank mix with Acrobat or Dithane, Acrobat plus a protectant, and Dithane. Timing and coverage is critical. Sprays should be made on a preventive basis and should reach into the canopy. All

remaining plants in hoop houses or beds should be destroyed as these forgotten plants can be a source of infection for plants in the field. See www.ctvalleytobacco.org for more information and emergency label for Quadris.

NEXT IPM FIELD SCHOOL: AUGUST 8TH AT GOLONKA FARM IN HATFIELD

4-7pm Wednesday, August 8, 2007

Jim Golonka grows 20 acres of diversified vegetables, all sold through his farmstand located on Rte 5&10 in Hatfield. Having used IPM in sweet corn for 15 years, he is experimenting with releases of Trichogramma wasps for ECB control. His farmstand carries high quality broccoli throughout the season, even in the summer heat.

Early August is the time to monitor and manage cucurbit diseases especially powdery and downy mildew and Plectosporium, and sweet corn pests especially corn earworm and fall armyworm and the second flight of ECB; to scout Brassicas for caterpillars; watch out for midsummer heat-loving pests such as mites and aphids; manage early blight in tomato and other midsummer diseases; and deal with second emergence of beetles (CPB, cucumber beetle, flea beetle). We will look at how early-season Trichogramma releases affect the late season ECB trap counts. Refreshments will be served.

Directions:

From North, take I-91 south to Exit 23. Turn left at end of exit ramp onto Routes 5 & 10 South. Travel 1.2 miles (just before the Hatfield town line). The farm will be on your left. There is a green & yellow sign out front.

From South, take I-91 north to Exit 22. At end of exit ramp bear right onto Routes 5 & 10 North. Travel 1.1 miles (just past the Whately town line). The farm will be on your right. There is a green & yellow sign out front.

NEW REGISTRATIONS FOR AVAUNT INSECTICIDE ON VEGETABLE CROPS

A new label for Avaunt has just been approved by EPA. Avaunt can now be used on spinach, bok choy, collards, and other brassica greens, cucurbit vegetables, parsley and other leafy green vegetables, celery and other leafy petiole vegetables, and potato and other tuberous & corm vegetables. Avaunt is used primarily for control of caterpillars such as cabbageworms, loopers, and beet armyworm, but it also controls some beetles such as Japanese beetle, Colorado potato beetle, and plum curculio.

Avaunt was first registered in 2001 for use on cole crops, lettuce, tomato, peppers, and sweet corn, then the label was expanded in 2002 to include napa cabbage, potato, and eggplant. Avaunt 70DG is made by DuPont and contains indoxacarb as the active ingredient, which is in mode-of-action group 22.

cC. Welty, Ohio state University Extension, VegNet Vol. 14 #21
07

EARLY BLIGHT OF TOMATO AND POTATO -UPDATE 2007

Early blight caused by *Alternaria solani* occurs wherever potatoes and tomatoes are grown. Uncontrolled, the disease may cause serious defoliation, resulting in decreased yield and quality. *A. solani* survives between crops on infected plant debris, soil, other solanaceous host weeds and can be carried on tomato seed and infected tubers. The fungus enters the leaves directly or through wounds. Primary infection can occur on older foliage early in the season, but most secondary spread occurs as the plants age. Actively growing, young tissue and vigorous plants with adequate nitrogen generally do not express symptoms. Infection is favored by mild, rainy weather.

Early blight occurs on the foliage, stem, and fruit of tomato. It first appears as small brown to black lesions on older foliage. The tissue surrounding the initial lesion may become yellow, and when lesions are numerous entire leaves may become chlorotic. As the lesions enlarge, they often develop concentric rings giving them a 'bull's eye' or 'target-spot' appearance. In the late summer when conditions are favorable for disease development, lesions can become numerous and plants defoliated, reducing both fruit quantity and quality. Fruit can become infected either in the green or ripe stage through the stem attachment. Lesions can become quite large, involve the whole fruit, and have characteristic concentric rings. Infected fruit often drop and losses of 30-50% of immature fruit may occur. Foliar symptoms on potato are quite similar, though defoliation rarely results. Tuber lesions are dark, sunken, and circular often bordered by a purple to gray raised tissue. The underlying flesh is dry, leathery, and brown. Lesions can increase in size during storage and tubers become shriveled.

Management. Use resistant or tolerant cultivars. Start with disease-free seed, transplants, and seed tubers (potato). Use long crop rotations, eradicate weeds, and eliminate volunteer plants and cull piles. Plow under plant debris after harvest. Fertilize properly and keep plants growing vigorously. In tomato, use of stake and weave system has been shown to reduce early blight compared to ground culture. In potato, handle seed tubers carefully to prevent wounding. Permit tubers to mature in the ground before harvesting and avoid bruising when handling. Spray regularly with fungicides. Spray applications should be scheduled based on disease forecasting systems (TOM-CAST) which account for leaf wetness period and temperature to be most effective.

Chemical recommendations:

azoxystrobin (Quadris): 0 dh, REI 4 h. Do not apply more than two sequential applications before alternating with a fungicide

with a different mode of action.

chlorothalonil (Bravo Ultrex 82 WDG): 0 dh, REI 12 h. Good rotation partner for Quadris.

dimethomorph plus mancozeb (Acrobat MZ): 14 dh, REI 24. Do not make more than five applications per season.

maneb/mancozeb (Maneb, Penncozeb, Manzate, Dithane): 3 dh, REI 24 h.

pyraclostrobin (Cabrio EG): 0 dh, REI 12. Do not apply more than 6 applications per season or rotate with Quadris.

NOTES ABOUT COLONY COLLAPSE DISORDER IN MASSACHUSETTS

From Dan Conlon, President, Massachusetts Beekeepers Association.

There is still much the researchers do not know, and it is still too early to make any direct connection to pesticides. The people I talk with have been narrowing things down and are saying that it is probably being caused by more than one stressor. Alone the stressor would be considered a sub-lethal factor. In combination these stressors result in a compromised immune system, ending with all the usual diseases attacking the bees. Fungal and bacterial diseases have been known to produce toxins that can cause bees to become disoriented. It has been referred to as the "AIDS" of the honeybee as the immune systems fail and the bees often have the equivalent of kidney failure.

Determining the extent of CCD is also difficult. There is no easy way to get an accurate picture of who or where this problem has shown up. At our spring meeting of the Massachusetts Bee Association (163 attendees) only two people reported that they thought they had lost bees to CCD. Although the survey is not scientific, it represented some of the more active beekeepers (and experienced; average number of years as beekeepers is 12.5) in the state. Varroa mites, chalkbrood, wax moths, and bears were the top four problems seen this past season. The other interesting result was that members filling out the survey reported an 80% winter survival rate. Take out the professional beekeepers (the four largest operations lost 10-20% which is normal), and we still had a 67% survival rate among the hobbyists. This would also be contrary to some of the news reports claiming 70% loss in Massachusetts. But I am not sure where news people get this information. What to conclude? Either we have yet to encounter the problem, or members are doing something that improves the bees health.

The state board of directors met two weeks ago and directors from various counties reported a few possible CCD incidents, but by and large did not consider it a wide spread problem.

I talk with a number of professional beekeepers on the east coast and many have not encountered CCD. I know some in PA have lost a considerable number of colonies, and it may put them out of business. Those operations that produce package bees and Queens for sale are so far still operating normally. My over-wintered bees look better this season than they have the past two years, and it is looking like a good honey producing year.

Locally one beekeeper at Apex Orchards, reported losing 75%

of his colonies to CCD. I do not know how many colonies were lost. He is experienced and I trust his judgment on evaluating the cause of his loss.

I am still saying that CCD is not a general concern in Massachusetts. I have reported it to the national CCD working group as being present in Massachusetts, as I have heard from beekeepers (people who can make the correct diagnosis), and believe we have been having this problem. I have also spoken to beekeepers who thought they lost bees to this, but after describing the symptoms, they changed their mind. There may be many beekeepers not reporting to anyone or county associations who have lost bees to CCD, but they are not counted unless they tell us. Not all beekeepers are skilled at diagnosing diseases, or CCD. For example, I still hear Tracheal mites being blamed for winter deadouts, but nationally Tracheal mites are no longer considered a major problem anywhere.

Our spring meeting focused on CCD (Dr. Dewey Caron U. of Delaware and Dr. Gordon Wardel USDA - Tucson Lab). Those who attended and filled out the survey received the information on this topic and now know what to look for.

As a general concern, Varroa mites, and bears have destroyed far more beehives this spring than CCD. They are still the most damaging problems beekeepers are facing in New England.

Dan Conlon

Warm Colors Apiary, 2 South Mill River, South Deerfield, MA 01373

warmcolors@verizon.net

warmcolorsapiary.com

413-665-4513

PENN STATE ADVICE FOR PROTECTING BEES

UNIVERSITY PARK, Pa. - In the midst of one of the most alarming die-off of honey bees ever documented, Penn State Entomology Extension offers advice for beekeepers and growers of bee pollinated crops.

The recent die-off of more than a quarter of the country's 2.4 million bee colonies has left many beekeepers devastated and growers wondering how they will pollinate their crops this season. The affliction, called Colony Collapse Disorder (CCD), was first discovered in November 2006 after a Pennsylvania beekeeper



Squash bee enjoying pollen

reported that more than 50 percent of his bee colonies he was overwintering in Florida had collapsed, meaning that the tens of thousands of bees that are supposed to be in each hive had simply disappeared. "Since the beginning of the year, beekeepers from all over the country have been reporting unprecedented losses," said Maryann Frazier, apiculture extension associate in entomology at Penn State's College of Agricultural Sciences.

According to Frazier, symptoms of CCD include the sudden reduction or disappearance of the adult bee population without evidence of dead bees. "The hive will contain brood pollen and honey, with little evidence of robbing, wax moth or small hive beetle attack."

Researchers from Penn State, other universities, government agencies and other institutions formed the CCD working group to determine what factors are responsible for these unprecedented colony losses. The cause of CCD is still largely a mystery with several factors such as a compromised immune system, poor nutrition, parasites, new viral or fungal diseases and chemical contamination being investigated. Researchers have collected samples in several states and have begun doing bee autopsies, chemical, and genetic analysis and say that a definitive answer for CCD could be months away.

Until there are answers, Frazier recommends a precautionary strategy on the part of beekeepers and growers in need of pollination services to reduce bee exposure to parasites, diseases and chemicals. "Chemicals include those being used within the hive for mite and disease control as well as pesticides used on crops that may inadvertently find their way into hives," Frazier explains.

- * Know the pesticides you are using and their toxicity to bees (do not depend on a third party to provide this information).
- * Read the pesticide label and follow label directions.
- * Never use a pesticide pre-bloom, just before bees are brought in to pollinate. If a pesticide must be used, select one that has a lower toxicity to bees and apply only when bees are not foraging, preferably late evening.
- * Do not apply pesticides post-bloom until after the bees have been removed from the crop.
- * Avoid applications on a non-blooming crop if there is a risk of drift onto blooming crops and weeds while bees are in the area. If a spray must be applied, use the least toxic materials and apply when bees are not foraging.
- * In the pre-bloom period, avoid the use of pesticides that are long-lived in or on the plant, such as some of the systemic pesticides.
- * Protect water sources from contamination of pesticides. Provide bees a clean source of water close to colony locations.

Frazier says growers should be prepared to cope with a potential shortage of pollination services and plan well ahead. "If growers have an existing contract or relationship with a beekeeper, they should contact that beekeeper as soon as possible to ascertain if the colonies they are counting on will be available," she advises.

For more information on honey bees and CCD, visit the Mid-Atlantic Apiculture Research and Extension Consortium Web

site at www.ento.psu.edu/MAAREC/ColonyCollapseDisorder.html. You may also contact Frazier at (814) 865 4621 or e-mail mxt15@psu.edu.

BEE TOXICITY OF INSECTICIDES REGISTERED FOR CUCUMBER BEETLE IN SQUASH AND PUMPKIN

The following list of insecticides are registered for use on cucumber beetle in pumpkin and squash as of May 2007 (www.vevegetable.org).

Below are the bee toxicity values of these products, from the Environmental Impact Quotient (EIQ) tables posted at the Cornell Integrated Pest Management Program website: <http://www.nysipm.cornell.edu/publications/eiq/default.asp>

A Method to Measure the Environmental Impact of Pesticides

Authors: J. Kovach*, C. Petzoldt, J. Degni**, and J. Tette, IPM Program, Cornell University, New York State Agricultural Experiment Station Geneva, New York 14456 *current address: Dept. Entomology, Ohio Agricultural Research and Development Center, 1680 Madison Ave., Wooster, OH 44691-4096 **current address: Cornell Cooperative Extension, Lewis County, Lowville, New York 13367'

Higher values indicate greater toxicity to bees.

Bee Toxicity Value	Insecticide
15	bifenthrin (Capture* 2EC): 2.6 to 6.4 oz/A (3 dh, REI 12h, Group 3A).
75	carbaryl (Sevin XLR Plus): 1 qt/A (3 dh, REI 12h, Group 1A). Very toxic to bees; do not apply during blossom time, apply in the evening. Observe plant response precautions. Do not apply to wet plants.
28.5	cyfluthrin (Baythroid*2): 2.4 to 2.8 oz/A (0 dh, REI 12h, Group 3A).
15	deltamethrin (Decis* 1.5EC): 1.5 to 2.4 oz/A (3 dh, REI 12h, Group 3A).
9.0	endosulfan (Thionex* 50W): 1 to 2 lb/A (2 dh, REI 24h, Group 2A).
28.5	esfenvalerate (Asana* XL): 5.8 to 9.6 oz/A (3 dh, REI 12h, Group 3A).
28.5	imidacloprid (Admire 2F): 1 to 1 1/2 pt/A (21 dh, REI 12h, Group 4). Systemic insecticide used as an in-furrow, banded, drench, or drip irrigation application to the seed/seedling root zone during or after planting/transplanting operations. DO NOT apply as a foliar spray. Note: Provado IS NOT registered for use on cucurbits.

28.5	imidacloprid (Admire Pro): 7 to 10.5 oz/A (21 dh, REI 12h, Group 4). Systemic insecticide used as an in-furrow, banded, drench, or drip irrigation application to the seed/seedling root zone during or after planting/transplanting operations. DO NOT apply as a foliar spray. Note: Provado IS NOT registered for use on cucurbits.
No info avail.	kaolin (Surround WP): 12.5 to 25 lb/A (0 dh, REI 4h, Group 25). Suppression/repellence only. White residue may need to be washed off if applied after fruit set. Stop applications when fruit is 1/4 expected size at harvest. OMRI listed.
45	oxydemeton-methyl (MSR*): 1 1/2 to 2 pt/A (3 dh for summer squash, 14 dh for pumpkin and winter squash, REI 48h, Group 1B). DO NOT apply more than once per season.
75	permethrin (Pounce*): 4 to 8 oz/A (0 dh, REI 12h, Group 3A).
3	pyrethrin (PyGanic EC5.0): 4.5 to 18 oz/A (0 dh, REI 12h, Group 3A). OMRI listed.
3	pyrethrins + piperonyl butoxide (Pyrenone): 1 tsp/gal, or 1 to 12 oz/A (0 dh, REI 12h, Group 3A).
28.5	thiamethoxam (Platinum): 5 to 8 oz/A (30 dh, REI 12h, Group 4). CT and MA only. Systemic insecticide used as an in-furrow, banded, drench, or drip irrigation application to the seed/seedling root zone during or after planting/transplanting operations. DO NOT apply as a foliar spray.

Information compiled by R. Hazzard, University of Massachusetts, July 2007

THE 33RD ANNUAL NORTHEAST ORGANIC FARMING ASSOCIATION (NOFA) SUMMER CONFERENCE

August 10th- 12th, 2007 ~ Hampshire College, Amherst, MA

Adult Workshops: More than 150 workshops on organic growing, animal husbandry, herbs and flowers, homesteading, practical skills, sustainable building, activism, health and nutrition, spirituality, and more.

Mini-Conference: Friday morning, on Agricultural Justice and Domestic Fair Trade in the Northeast.

Children's Conference: Engaging workshops for ages 5-12. Supervised activities and free play for ages 2-4

Teen Conference: Ages 13-17: Enjoy practical skills and fun!

Ongoing Entertainment: including a contradance, live music, family storytelling and songs, and community gatherings.

Old-Time Country Fair: on Saturday afternoon, featuring a parade, live music, farmers' and crafters' market, games, demonstrations, contests, & prizes! *Open to the public!*

Organic Meals: with vegan, vegetarian, and meat options- dining hall or local food vendors.

Keynote Addresses by Bill McKibben and Hazel Henderson

Camping and dorm rooms available. Register for one day or all three. Register online at:

<http://www.nofamass.org/conferences/s2007/index.php>

MASSACHUSETTS 23RD ANNUAL TOMATO CONTEST 2007

At the City Hall Plaza Farmers' Market, Boston, Monday, August 20, 2007

Please join us for the 23rd annual Massachusetts Tomato Contest. Sponsored by the New England Vegetable and Berry Growers Association in cooperation with the Massachusetts Department of Agriculture, this friendly contest is designed to increase consumer awareness of local agriculture.

Schedule of Events:

9am-10:15am- Tomato drop-off and registration

10:30am- Judging of tomatoes by panel of experts

12:30pm- 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- Shape should be symmetrical, but most importantly, the tomatoes in each entry should be uniform in size.

For more information regarding the Tomato Contest please contact David Webber at (617) 626-1754 or David.Webber@state.ma.us

SWEET CORN AND PEPPERS

European corn borer trap counts continued on an upward trend this week as the second generation flight increased. In the absence of other moths, ECB should be controlled with 6-7 day spray intervals on silk. Remember to continue scouting pre-tassel and tassel corn for ECB damage and larvae. **Pepper growers** should be on a regular spray schedule by now, if ECB is a problem for them. Female moths will lay eggs on the undersides of leaves of peppers and corn and eggs will hatch in 4-9 days.

Fall armyworm captures are still at zero in the Connecticut Valley and in Southeastern Mass. We are using the "PSU" FAW

lure (produced by Scentry) that was developed at Penn State and is doing a good job of capturing moths. A five day spray schedule would be recommended on silking corn wherever this moth is being captured at >3 moths per week. Note that there are look-alikes that come to the trap. Be sure to use a vaportape strip to kill moths before their wings are shredded beyond recognition. Look for blotchy, lighter or darker markings on the buff colored wings, especially a diagonal white patch on each forewing.



Adult fall armyworm

Given high temperatures, expect rapid egg hatch and larval growth for both ECB and FAW. Scout whorl-stage and pretassel corn for combined FAW

and ECB caterpillars. Add the # plants with FAW and the # plants with ECB and divide by the total plants you samples. Treat if > 15% of plants are infested.

Corn earworm captures are increasing slowly but surely. Silking corn needs to be treated to avoid these caterpillars from eating the corn ears. Some growers have shortened their spray schedules to every 4-5 days in areas where trap captures are over 7 moths per week, especially in Central Massachusetts and Essex County. In various locations in the Connecticut valley, we found numbers in the 0.6 to 1 per night range, calling for a five day spray schedule. Shorter spray schedules would be recommended where captures were between 1.1 and 13 moths per night. Variations in trap captures may reflect what date the trap was checked as well as variations from farm to farm. People checking these traps are careful to keep their traps in fresh silk. It is best to check traps at least twice weekly to know if new flights arrive.

If you are not spraying, but applying oil directly to the silk, remember that only one treatment is necessary per ear of corn.

Amanda Brown, UMass Extension

Sweet Corn Trap counts for August 2, 2007

Location	ZI	EII	Total ECB	CEW
Sheffield	2	0	2	1
South Deerfield	0	11	11	-
Deerfield	1	56	57	13
Granby	3	0	3	0
Whatley	3	3	6	3
Hadley (2)	0	43	43	20
Hadley (1)	1	0	1	1
Amherst (1)	1	0	1	-
Amherst (2)	1	0	1	4
Sunderland	0	15	15	1
Concord	0	8	8	6
Leicester/Spencer	2	1	3	9
Northbridge	31	1	32	17
Tyngsboro	14	1	15	4
Dracut	1	0	1	1
Lancaster	6	0	6	9
Still River	4	6	10	28



Vegetable Notes is funded in part by a grant from the EPA Region I Environmental Stewardship Program, through the New England Vegetable and Berry Growers Association.

If you or your business would like to become a sponsor or make a donation, please contact the Outreach Development office at 413-545-4371.

Vegetable Notes, Ruth Hazzard, editor and Amanda Brown and Martha Powers, assistant editors. Vegetable Notes is published weekly from May to September and at intervals during the off-season, and 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 and photographer is R. Hazzard if none is cited.

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.

Pepper Trap Counts for August 2, 2007

Location	ZI	EII	Total ECB
Hadley	6	16	22
Amherst	3	2	5

--Thanks to our scouting network: R.Hazzard, P.Westgate, A.Brown, A.Lopez-Swetland, D.Rose, J.Golonka, S.Pepin, G.Hamilton, P.Willard, J.Mussoni

VEGETABLE NOTES IS SPONSORED BY:



25 Elm St., South Deerfield, MA 01373. Phone 413-665-2115.

DeCran Ag Supplies

461 Mary's Pond Rd., Rochester MA 02770. Phone 800-882-3779, info@decran.com

