

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 16, 2004

Pest Notes

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✓ **Pepper:** First generation **European corn borer** has ended, and won't be a problem until early August. Thus far, no **beet armyworms** or **corn earworms** have been detected on peppers, but this may change as the summer storms from the southern states follows the coastline to this area. These wind patterns tend to bring the moths into New Jersey. Also, **aphid** populations have remained very low, probably because of the cool temperatures and heavy rainfalls every few days. Hot temperatures and overuse of pyrethroid insecticides will cause outbreaks in the aphid population, thus a rotation of the classes of insecticides when spraying for European corn borer will help manage the aphid population.

Label Change in Non-Bell Peppers: There has been a label change in peppers that will affect growers of non-bell peppers. New labels of Orthene 75S and 97S (Orthene = acephate) list **aphids** only under the non-bell pepper section, but does not list **European corn borer**. Label corrections will be made in the future, but in the meantime the company producing Orthene will apply to the EPA to have corn borer placed back on the label. In New Jersey, it is legal to apply a pesticide on a crop for control of a pest that is *not* on the label as long as the crop itself is labeled (NJ DEP Division #6). Orthene works well against the corn borer on both bell and non-bell peppers.

✓ **Potato:** A new insecticide has been federally approved by the EPA for use against **Colorado potato beetles**, **armyworms** and **whiteflies** in white potatoes. Rimon 0.83EC, also called novaluron, is an insect growth regulator that interferes with chitin development and prevents larvae from molting to the next stage. This material does *not* affect adults, and you can tell it is working by an absence of larvae 4-5 days after application. Apply up to two (2) applications per season against the same generation potato beetle using 9-12 oz/acre per application.

Heavy populations of the **potato leafhopper** are beginning to appear in white potatoes at RAREC on untreated potatoes. Leaves are yellowing, curling, and 'hopperburn' is starting to appear. Monitor your potatoes for nymphs and adults of potato leafhopper at least 2-3 times per week, as this is a pest that you cannot afford to let reach high levels; the plant generally does not recover from hopperburn damage. If you notice leaves beginning to look off-color (yellowish), or curling upward, and you find either adults or nymphs of the potato leafhopper, apply a non-neonicotinoid class of insecticide (insecticides other than Actara, Assail, or Provado). Some of these materials such as dimethoate and

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Lannate, are effective against leafhoppers only. Others, such as Thiodan and Vydate L, are also effective against Colorado potato beetle. Imidan controlled the beetle at one time many years ago, but likely will not control potato beetles now.

✓ **Tomato:** Although aphid populations remain low, the **Colorado potato beetle** has been a problem to many growers. At this time, and for the remainder of the year, it is best to use a non-neonicotinoid class of insecticide for control of potato beetles (do *not* use Actara, Assail, or Provado at this time; these materials should be used before mid-June only). Consult page F116 of the *2004 Commercial Vegetable Production Recommendations for New Jersey* for an update on potato beetle thresholds (when to spray) and a listing of recommended materials to use for effective control of potato beetles. Agri-Mek, azadirachtin (neem-based materials) [for small larvae only], *B.t.* insecticides (Novodor, Raven)[for small larvae only], cryolite (Kryocide, Prokill Cryolite), SpinTor, Thionex (ex-Thiodan), and Vydate L are all effective against potato beetles. □

PESTICIDE SAFETY FROM PAGE 4

- Run the empty washer through a full wash/rinse cycle afterward.

Instructions for Cleaning Protective Equipment

- Wear rubber gloves while cleaning equipment
- Wash hard hat or waterproof hat, goggles, face shield, apron, boots with hot soapy water, rinse and dry.
- Wash the respirator face-piece only. Before cleaning, remove the cartridges.
- Wash the respirator in warm soapy water, rinse and air-dry.
- Check seals and valves for signs of damage or wear.
- Store the respirator and cartridges in a sealed plastic bag.
- Last wash your gloves with hot soapy water, rinse and dry.
- Inspect and replace any worn or damaged protective equipment.

Adapted from the Institute of Rural and Environmental Health, University of Saskatchewan by Craig Hollingsworth.

Submitted by Win Cowgill, Agricultural Agent. □

IPM Update

Kristian Holmstrom, Program Associate in Vegetable IPM

Sweet Corn

Blacklight trap catches of **European corn borer (ECB)** moths increased through the second half of last week, and then have declined this week despite warm evening temperatures. This is the first indication that the first adult flight may be in decline in New Jersey. Trap catches are still in the moderate range, particularly north of Middlesex and Mercer counties (see ECB map). Feeding in sweet corn plantings can still increase sharply in some areas, so be sure to check all plantings weekly for the presence of ECB injury both in the tassels and on the leaves. If feeding exceeds 12% in a 50 plant sample, consider treating. As plantings progress to full tassel, be sure to treat for ECB if larvae are still present. As long as ECB adults are being caught in local light traps, consider treating silking plantings weekly unless silking spray schedules need to be tightened should **corn earworm (CEW)** catches increase. The highest average nightly **ECB** blacklight trap catches are:

Denville	4	Blairstown	1	Elmer	1
Chester	3	Chapel Heights	1	Pedricktown	1
Hammonton	2	Cohansey	1	Seeley Lake	1
Morristown	2	East Vineland	1	Springdale	1

Only a few scattered CEW moth catches have occurred over the past week. These catches do not indicate a significant threat from this pest at this time. Due to low numbers, no CEW map will appear in today's newsletter. CEW maps will commence as soon as catches increase. Despite the absence of CEW, consider treating silking plantings once a week to prevent late flight ECB from infesting ears directly, and to minimize **sap beetle** injury.

Tomatoes

Be on the lookout for bacterial infections in tomatoes now, as many early plantings have been pruned, tied, and have enlarging fruit. **Bacterial speck** and **spot** are characterized by very dark lesions on older and younger leaves. These lesions may be found on the leaf margins, but are often near the mid-rib where water may accumulate after dew or rain. Speck causes a superficial dark blister-like lesion on the fruit, but spot creates a scabby fruit lesion that penetrates past the skin. Both render fruit unmarketable. The third common bacterial infection is **canker**. This disease is often first identified by necrotic leaf margins. Again, the lesions are dark, with a sharp upward curl to affected leaves. Canker can become systemic and may begin to cause entire branches to die. The fruit lesion is a superficial whitish blister referred to as a "birds-eye" spot. If any of these symptoms are present on tomatoes, consider treating with copper plus a mancozeb product at 7 day intervals, or use the lowest labeled rate of Actigard. Avoid working in fields when foliage is wet. Always work in younger plantings before older ones so as not to spread the infection to younger plants.

Peppers

With ECB adult numbers in decline, the threat to peppers is reduced. Do not stop preventive treatments on peppers, however, until local blacklight trap catches of ECB drop below an average of 1 per night. Cross-hatched areas on the map (green on the Pest Management Office web version found at: www.pestmanagement.rutgers.edu/IPM/Vegetable/Pest%20Maps/maparchive.htm) represent populations that

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warrant weekly preventive sprays if fruit are present.

Aphids are on the increase in some fields at this time. Prior to fruit set, aphid infestations are often controlled by predators and parasites. If they become heavy while fruit are enlarging, however, their sticky droppings can render fruit unmarketable. Scout weekly, and if aphid colonies are on the increase and fruit is present, or if droppings are being deposited on fruit, consider treating.

Root and stem rots have been reported in some southern New Jersey fields this week. The typical disease on peppers is **phytophthora crown rot**. This is characterized by consecutive plants wilting down following periods of high soil moisture and warm temperatures. A dark lesion will be present at and just above the soil line. Anything that can be done to eliminate conditions of high soil moisture will help in limiting this disease. Cultural practices include high raised beds with dome-shaped tops, filling in the holes around transplants with soil to prevent water accumulation, and improving drainage to eliminate areas of standing water. The variety 'Paladin' is resistant to the crown rot phase of phytophthora.

Pumpkins

Newly emerged pumpkin plantings must be scouted at least once a week for the presence of **cucumber beetles**. If an imidacloprid formulation or Furadan was used at planting, cucumber beetle should not be evident for the first few weeks. If not, there is a risk that cucumber beetles may transmit **bacterial wilt** to plants between emergence and 4- true leaves. Check 5 consecutive

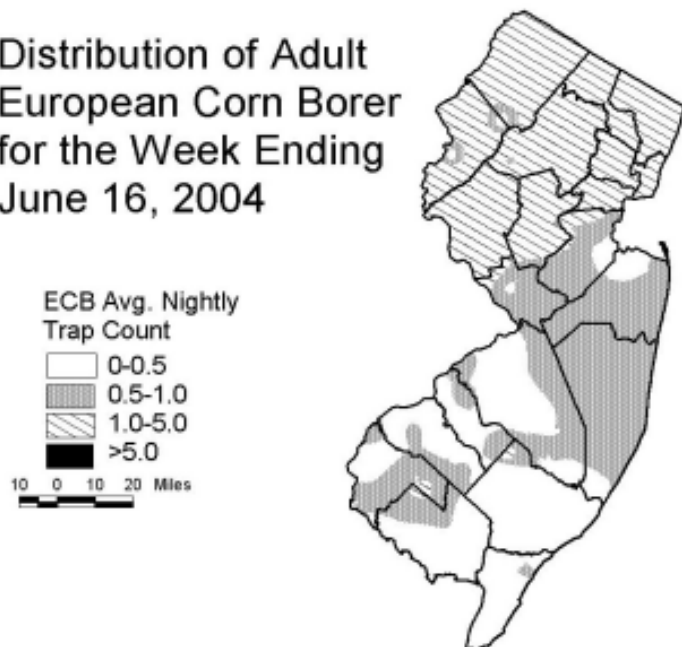
plants each in 10 random locations. If cucumber beetles are present at 5 or more sites, consider treating to minimize disease transmission.

Melons and cucumbers

Recently, **two-spotted spider mites** have been found in muskmelon plantings in northern New Jersey. As with other crops, it is important to catch mite infestations in vine crops early, so as not to allow the problem to become unmanageable. Check at least 50 plants in the field, making sure to take some samples from field edges. Look for the light colored pin spots on the upper leaf surface and webbing beneath. If mites are found in pockets of the field, spot treatments may be applied. If they appear more widespread, consider treating the entire planting and scout again in one week to assess control.

As the time for fungicide applications approaches in the vine crops, remember that there is documented resistance to the strobilurin fungicides in cucurbit **powdery mildew**, and in **gummy stem blight (black rot)**. In New Jersey, there were at least two watermelon fields that did not respond to applications of Quadris, and all foliage was lost to gummy stem blight. If strobilurin fungicides (Quadris, Flint, Cabrio) are to be used on these crops (still a good rotational material for powdery mildew in most cases), it is important to use them early in the program and be sure to rotate with a protectant like chlorothalonil (Bravo, Equus) and the highest labeled rate of Nova. This rotation will provide adequate control and delay the onset of resistant strains.

Distribution of Adult European Corn Borer for the Week Ending June 16, 2004



Data collected and processed by: Kris Holmstrom, Marilyn Hughes
Rutgers Cooperative Extension & Center for Remote Sensing

Pesticide Safety Around the Farm

Bill Coli, UMass Extension Farm Safety Coordinator

Reprinted from *Healthy Fruit-UMASS Fruit News Letter*, Vol. 11(9) June 3, 2003, <http://www.umass.edu/fruitadvisor/>.

Those of us who use pesticides certainly make every effort to do so in accordance with label conditions regarding rates, personal protective equipment (PPE), re-entry intervals (REIs), pre-harvest intervals (PHIs) and the like, and take pains to be sure that farm workers and family members are not exposed to pesticides. With the passage in 1996 of the Food Quality Protection Act (FQPA) additional attention has been paid by the EPA to concerns about worker exposure and potential dietary effects of pesticides on children.

However, studies conducted at the Pacific Northwest Agricultural Safety and Health Center (PNASHC) have indicated that children may be exposed to pesticides in other ways (See "Pesticides and Farming: Are Children in Harm's Way?" NIOSH Ag. Research Centers Update, Spring 2003, Vol. 1, No. 2). The PNASHC found "elevated" levels of agri-chemicals in household dust in homes of agricultural workers compared to the general public. A recent report on the studies went on to add that "...children of pesticide applicators also had higher levels of pesticide metabolites" in their urine than children whose parents did not work in agriculture.

Another PNASHC study of 44 pre-school children of non-agricultural workers who live in close proximity to sprayed agricultural areas found that levels of pesticide metabolites in their urine increased during the spraying season and returned to normal after the end of the season. Of course the situation in northeast is likely very different from Washington State in terms of the size of agricultural areas being treated with pesticides. Nonetheless, as noted by the PNASHC study authors, it would still seem prudent to consider ways "to strike a proper balance between the risks and benefits of agricultural pesticide use", and minimize potential exposure of our families and our neighbors.

Laundering Clothing used During Application of Pesticides

Applicators cannot completely avoid exposure to the chemicals that they apply. Exposure occurs during any of the many activities involved in the spraying operation, including transporting the pesticide, tank filling and mixing, container rinsing, spraying, sprayer maintenance, pesticide storage and early re-entry to treated areas.

Exposure can involve contact with pesticide vapors and aerosols, the concentrated pesticide formulation in a liquid, granular, or powder form, and the spray mixture

itself. Workers absorb chemicals into the body through the skin, eyes, respiratory (breathing) or digestive system (swallowing). Studies have shown that good personal hygiene practices reduce the risk of long term health effects.

General Recommendations

- Read and understand the product label and material safety data sheet before application.
- Bathe or shower after completion of pesticide application, including shampooing hair thoroughly and cleaning under nails.
- Put on clean clothing.
- Clothing worn during application must be washed daily after each use.
- Launder all clothing used for spraying separately from the family's regular clothes.
- Personal protection equipment should be cleaned daily after use.
- Discard any clothing that is heavily soiled with pesticide concentrate.

Preparation for Laundering

- Remove pesticide granules from cuffs and pockets outdoors (in the field).
- Discard (according to label instructions) any garment saturated with a full-strength chemical.
- Handle soiled clothing with chemical resistant gloves.
- Use disposable plastic garbage bags for temporary storage of pesticide-soiled clothes before washing.
- Pre-treat pesticide-soiled clothes with a laundry stain removal product intended for oily stains when an oil-base (emulsifiable) formulation has been used.
- Pre-treat heavily soiled areas.
- Read the pesticide label for information.
- Pre-rinse pesticide-soiled clothing: on pre-soak cycle of automatic washer or presoaking in a suitable container (dump water on field) or spray/ hose the garment outdoors (away from children and pets).

Laundering

- Isolate pesticide-contaminated work clothes and wash them separately from the regular family laundry to avoid contamination.
- Do not overcrowd clothes in the washing machine.
- Use hot water (140°F) setting.
- Use full water level.
- Use normal wash cycle (about 12 minutes).
- Use more detergent than recommended by product label.
- Use fabric starch. Pesticide residues cling to the starch and are removed in the subsequent wash cycle when the starch is washed away.
- Choose a heavy-duty detergent (liquid or powder).
- Re-wash clothing two or three times.
- Line dry clothing to avoid contamination of the dryer and to allow sunlight to break down pesticide residues.

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High Temperatures, Copper Applications and Oxidate

Andy Wyenandt, Ph.D., Post Doctoral Associate in Vegetable Pathology and Michelle Infante-Casella, Gloucester County Agricultural Agent

This past week brought a lot of heavy rain and wind with it making it ideal for bacterial infections to occur. All bacteria need a wound in order to cause infection. Heavy rain, winds and hail can all cause injury to vegetable plantings. Some injury is quite noticeable, such as hail damage, however, other injury may go unnoticed. Cultural practices such as tying, staking, cultivation and pruning can also create entry ways for bacterial infections.

Now that the rain has subsided and the sun is out many growers may plan on applying copper fungicides or tank mixes. **Be careful** when temperatures are high.

High temperatures increase the possibility of **phytotoxicity** when using Copper-based fungicides. In order to avoid this problem, growers should watch the daytime temperatures closely and avoid spraying if temperatures remain high. Management strategies to help avoid bacterial problems include not working in fields when the foliage is wet. Additionally, if overhead irrigation is used try to irrigate in the morning so foliage will dry quickly. Bacterial diseases or any disease thrives and spreads more when foliage remains wet for long periods of time.

Additionally, the product Oxidate was a promising tool in 2003 for control of bacterial diseases, especially in tomatoes. Take caution when using this product and make sure to read the labels for Oxidate. According to the product MSDS Oxidate contains hydrogen dioxide (synonym for hydrogen peroxide) and peroxyacetic acid. The MSDS also states that the pH is 1.33 and that combinations of Oxidate with bases and metals (to name a couple) should be avoided due to reactivity issues and product instability. Mixtures of Oxidate and copper hydroxide may possibly produce soluble copper that is known to be phytotoxic. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 68 degrees north, 69 degrees central and 69 degrees south. Extremes were 94 degrees at Canoe Brook on the 10th, and 46 degrees at Charlotteburg on the 12th. Weekly rainfall averaged 0.45 inches north, 0.36 inches central, and 0.65 inches south. The heaviest 24 hour total reported was 1.03 inches at Belvidere on the 10th to 11th. Estimated soil moisture, in percent of field capacity, this past week averaged 82 percent north, 79 percent central and 75 percent south. Four inch soil temperatures averaged 66 degrees north, 68 degrees central and 68 degrees south.

Weather Summary for the Week Ending 8 am Monday 6/14/ 4										
WEATHER STATIONS	R A I N F A L L			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	1.03	12.86	-.33	93	50	70.	2	822	256	89
CANOE BROOK	.24	14.99	.64	94	49	71.	3	863	333	72
CHARLOTTEBURG	.27	14.44	.09	91	46	67.	2	738	343	65
FLEMINGTON	.73	15.33	1.68	91	48	68.	0	824	272	88
LONG VALLEY	.36	12.54	-2.11	88	48	66.	0	711	267	76
NEWTON	.07	13.45	.60	92	47	67.	1	730	277	73
FREEHOLD	.77	15.47	1.97	93	50	71.	2	904	273	91
LONG BRANCH	.16	13.36	-.36	92	53	69.	1	727	155	63
NEW BRUNSWICK	.50	14.02	.79	93	50	70.	0	857	184	88
TOMS RIVER	.10	15.10	1.67	93	49	69.	2	923	352	60
TRENTON	.25	12.19	-.05	93	53	69.	-2	903	187	57
CAPE MAY COURT HOUSE	.30	12.98	1.10	89	51	67.	-2	846	207	53
DOWNSTOWN	1.19	13.53	1.39	90	50	68.	-2	996	258	90
GLASSBORO	.62	16.35	3.30	92	54	70.	-1	1055	337	73
HAMMONTON	.13	13.66	.96	92	51	69.	-2	1027	318	53
POMONA	.95	12.51	.82	90	51	68.	-1	943	299	86
SEABROOK	.71	15.33	3.90	91	53	70.	-1	1121	377	81
SOUTH HARRISON	.97	16.73	3.78	90	53	69	NA	1063	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week 169 (Ending 6/7/04) This Week 197 (Ending 6/14/04)										

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