

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 21, 2006

IPM Update

Joseph Ingerson-Mahar, Vegetable IPM Coordinator

Blacklight trap catches

European corn borer numbers vary considerably across the state with the highest catches occurring in southern Hunterdon (1 to 3 moths per night), Warren and Sussex Counties (2 to 4 moths per night) where it appears the peak flight for the first generation moths is occurring. Through the central and southern areas of the state most sites are trapping 1 moth per night or less. The exceptions are Tabernacle and the Indian Mills area, Shirley, Cohansey, Elmer and Centerton where nightly catches are averaging 1 to 2 per night.

Corn earworm numbers are light throughout the state with only an occasional adult being caught. Tabernacle, Indian Mills, East Vineland and Hammonton sites have the highest catches but these are averaging less than 1 moth per night.

No state-wide maps will be produced for today's newsletter and for next week as well.

Field scouting

Growers are reminded to be on the watch for a build up for **thrips** and **stinkbugs** in vegetable crops because of the drying down of the spring grasses and small grains. Barley is being harvested now in southern New Jersey and wheat will be harvested in another couple of weeks. As these crops dry and are harvested the adult stinkbugs and thrips will migrate to other crops. One farm has already been given a recommendation to spray for thrips in tomatoes and peppers.

In looking for **thrips** check the underside of leaves for signs of feeding damage. Like mites, thrips damage the leaf cuticle as they feed making it harder for plants to control water loss. The damaged area will appear to be shiny on tomato leaves. Disregard the presence of thrips in the flowers unless there are large numbers present (more than 5 per flower) as there will almost always be thrips in the flowers regardless of their overall numbers.

Stinkbugs continue to pose problems in scouting for them in any crop. Stinkbugs will move behind leaves or stems when they detect movement close by making finding them that much more difficult. Often we do not realize that stinkbugs are present until we find their damage. In looking over foliage the eggs can be recognized because they appear to be barrel-shaped and are laid in clusters numbering around 20 to 30 eggs. With a hand lens you may be able to see a ring of spines on the upper end of the eggs to help further identify them.

SEE IPM ON PAGE 2



INSIDE

IPM Update	1
Pest Notes	2
Vegetable Disease Update	3
Pre-Harvest Checklist for Strawberry PYO	3
Disease Briefs	4
Weekly Weather Summary	5

Tomatoes

Despite low trap catches of **corn earworm**, the first earworm larvae feeding on fruit have been found. Now that fruit set has occurred for the first plantings of tomatoes look over the green fruit for the presence of earworms (fruitworms).

Tomato hornworm moths have begun laying eggs and a few larvae have been found on plants. Look for the large, round green eggs of the moth on the underside of the leaves. Eggs are laid singly and look like a small green pearl on the leaf about an 1/8th inch in diameter.

Aphids are sporadic pests and now that the plants are reaching large size be sure to look at the interior leaves of plants for the presence of aphids. Remember that using Sevin and pyrethroids on a regular basis can lead to a build up of aphids and **spider mites**.

So far the presence of **bacterial diseases** seems to be light. If there is any sign of bacterial lesions and thrips are present then precautions should be taken to prevent the buildup of the bacterial diseases.

Pith necrosis has been detected in early season tomatoes at one farm. Initially this disease is reminiscent of bacterial canker but the best indicator for pith necrosis is that the inner pith in the affected branches and stems is brownish black. Externally brown elongate lesions appear on the affected stems and branches and leaves turn yellow and wilt.

Peppers

So far little has been found in peppers. The fruit set now on the oldest plantings have reached the size that **European corn borer** will be attracted. The newly hatched caterpillars will begin feeding under the fruit cap leaving very small accumulations of frass or 'sawdust' at the entry site.

Sweet corn

European corn borer damage to whorl corn has reached as high as 44% in northern New Jersey but generally is lighter than that. Fields in the central and southern part of the state have around 10 to 15% feeding damage.

Growers need to make sure that tasseling and silking corn is protected from both corn borers and corn earworm. Unless otherwise indicated on the corn earworm charts of participating blacklight growers, spraying should be at least once every 6 days.

Growers with sweet corn near small grain fields should be watchful for **true armyworm** infestations. Two grain corn fields were attacked by armyworm in Salem County this past week where the armyworms were moving out of small grain fields.

In the same area, cereal leaf beetle adults were abundant and causing noticeable feeding damage to the corn. The damage was not economically important, however as the beetles make long slender feeding scars on the under surfaces of the leaves. The damage is short-lived as the beetles will feed briefly and then go into diapause (hibernation) for the rest of the year until they reappear early next spring. □

Pest Notes

Gerald M. Ghidui, Ph.D., Specialist in Vegetable Entomology

✓ **Parsley** - Although the EPA has phased out most uses of azinphos-methyl (Guthion), a lawsuit is challenging the EPA to cancel all remaining uses of this material. Parsley growers still rely on Guthion as the most effective control measure for **carrot weevil**. Loss of this product will certainly have a negative impact in fresh and moss-curved parsley.

✓ **Pepper** - IPM specialist J. Mahar reports that feeding damage to fruit caused by **thrips** has been found, along with thrips under the caps of fruit. The threshold for thrips on peppers is to begin treatment when thrips are found. Consider either Agri-Mek, Actara, Assail, Baythroid, bifenthrin, Entrust/SpinTor, Venom, Vydate, Warrior, or Proaxis for thrips control in pepper. Pesticides belonging to the neonicotinoid group of insecticides (Actara, Assail, Provado, Venom) are effective and can be used at this time in peppers because **Colorado potato beetles** are not a problem in peppers and will likely not be exposed to these materials if used in pepper.

As in tomato, remember to obtain thorough coverage, including within the flowers and under the caps (if fruit are present).

✓ **Tomato** - IPM specialist J. Mahar reports that populations of **thrips** have been building up in the tomato flowers. Thresholds have been reached, and he recommends the use of a pesticide for control of thrips. Several effective materials are labeled, including Entrust/SpinTor, Guthion, Monitor (Special Local Needs Label, 24-C), Proaxis, and Warrior. Avoid the use of any of the materials of the neonicotinoid class (such as Assail, Provado, Venom) at this time to reduce the potential of insecticide resistance with the **Colorado potato beetle**.

Remember that thorough coverage is important, including canopy penetration, flower penetration, and leaf undersides coverage.

✓ **White potato** - The effectiveness of the at-plant insecticides are diminishing, and with the arrival of warm temperatures, **leafhopper** populations are increasing in potatoes throughout New Jersey. Monitor closely for **potato leafhopper**, and do not let these pests become unmanageable or to cause damage (once leafhoppers cause damage, the plant health is compromised and yield loss will occur. The amount of yield loss is proportional to the amount of damage). If leafhopper counts exceed 1 adult per sweep, or 1 nymph per 10 leaves, a treatment is recommended. These are relatively low thresholds because this pest has such potential to cause irreversible damage to the crop. For insecticide resistance management, use a non-neonicotinoid-class insecticide for

SEE PEST NOTES ON PAGE 4

Vegetable Disease Update

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology
and Wesley Kline, Ph.D., Cumberland County Agricultural
Agent

✓ **Cucumber/Pickles – Angular leaf spot has been detected in some fields over the past few weeks.** Symptoms are distinct and easily diagnosed. Small water-soaked lesions develop on leaves and expand until they are delimited by larger secondary veins in leaves resulting in angular lesions. After time these lesions turn brown and infected tissue drops-off resulting in 'shotholes'. Angular leaf spot can be spread by splashing rain, insects, on the hands of workers and on farm machinery. Working in the field when the foliage is wet favors the spread of the disease. The disease can also be spread by blowing wind and in irrigation water. Best management of Angular leaf spot begins with clean-seed and planting in fields that has been out of cucurbit production for at least 2 years. Cultivating when foliage and soil are wet and irrigating with pond water should be avoided. There are cucurbit varieties with resistance. Add label rate of fixed copper + mancozeb to fungicide maintenance program and repeat applications every 7 days.

✓ **Pepper – Phytophthora blight** – The first cases of Phytophthora blight were found last week. Heavy rains these past few weeks have made conditions in some areas ideal for development.

For control of the crown rot phase of blight:

Apply 1 pt Ridomil Gold 4E/A or 1 qt Ultra Flourish 2E/A (mefenoxam, 4). Apply broadcast prior to planting or in a 12- to 16-inch band over the row before or after transplanting. *Make two additional post planting* directed applications at 1 pint Ridomil Gold 4E or 1 qt Ultra Flourish 2E per acre to 6 to 10 inches of soil on either side of the plants at 30-day intervals. Use formula in the "Calibration for Changing from Broadcast to Band Application" section of Calibrating Granular Application Equipment to determine amount of Ridomil Gold needed per acre when band applications are made.

When using polyethylene mulch, apply Ridomil Gold 4E at the above rates and timing by injection through the trickle irrigation system. Dilute Ridomil Gold 4E prior to injecting to prevent damage to injector pump.

For prevention of the stem and fruit rot phase of blight:

Apply the following on a 7- to 10-day schedule:

Fixed copper at 2 lb 77WP/A or OLF, or

Ridomil Gold Copper (mefenoxam + copper, 4 + M1) at 2.5 lb 65WP/A. Make three to four applications at 10- to 14-day intervals. (Only apply Ridomil Gold 4E at planting and 30 days later. The third application of Ridomil Gold 4E cannot be made when Ridomil Gold Copper is applied.)

The following materials are labeled for Phytophthora on peppers, but there is little information on efficacy in the Mid-Atlantic region. For best results tank mix with a copper containing fungicide.

Forum (dimethomorph, 40) at 6.0 oz 4.18SC/A, or

Tanos (famoxodone + cymoxanil, 11 + 27) at 8-10 oz 50W/A

✓ **Potato/Tomato – Air pollution - Ozone injury** has been found on the research farm on both potato and tomato. Symptoms of ozone injury include small, irregular blackish-brown lesions on top and bottom of leaves. Lesions on bottom of leaf appear slightly sunken. Leaves on top of

SEE DISEASE UPDATE ON PAGE 4

Pre-Harvest Checklist for Strawberry Pick-Your-Own

David Handley, Specialist in
Vegetables/Small Fruit, University
of Maine Extension

*Reprinted from Vermont Vegetable
and Berry News, June 21, 2006, Univer-
sity of Vermont Extension.*

Review the following items to evaluate your farm's customer readiness: Signs to the farm are neat and easy to read. There's easy access to the fields and plenty of parking. Someone is ready to greet customers and offer parking instructions and directions to the field. Access to the field is free of hazards. Transportation is provided for the elderly and disabled. The rules regarding picking are clearly posted. Someone is in the field to show customers where to pick and to answer questions. There are plenty of picking containers available. Clean restroom and hand washing facilities are available. Someone is available to help customers carry fruit out of the field. The checkouts are fast and efficient. Beverages are available. Shade and seats are available for customers wanting to rest. The help are friendly and knowledgeable. Remember: a friendly, clean, and organized atmosphere will leave a lasting impression on your customers, encouraging them to come back and to recommend your farm to their friends. □

DISEASE UPDATE FROM PAGE 3

plant may be damaged while bottom leaves remain healthy. Length of frequency of exposure, cultivar, stage of plant growth and foliage density all influence extent of injury. Ozone injury can predispose leaves to infection by other potential pathogens.

✓ **Tomato – Bacterial spot, speck and canker** – Bacterial diseases can cause serious problems in the field if infections are allowed to spread. Apply Actigard (P) at 0.33 oz 50 WG/A, or fixed copper (M1) at 1 lb a.i./A plus a mancozeb (Dithane, Manex II, Manzate, Penncozeb, M3) at 1.5 lb 75DF or OLF, or ManKocide (M1 + M3) at 2.5 to 5.0 lb 61WP/A, or Cuprofix MZ (M1 + M3) at 1.75 to 7.25 lb 52.5DF/A on a 7 day schedule.

✓ **Tomato - Stem Rot/Pith Necrosis** – Both bacterial diseases have shown up in isolated areas over the past week. Symptoms begin to develop as green fruit begins to mature. Both bacteria are most likely ubiquitous to tomato fields and develop when weather conditions and cultural practices lead to favorable conditions for disease development. Symptoms include the development of irregular brown lesions on main stems and branches. Late pruning (suckering) can provide entry points for both bacterial diseases, especially during wet conditions. Internally, stems will become brown and mushy. High humidity is necessary for disease development in both cases. High nitrogen and low night temperatures are associated with Pith Necrosis development. Control of both begins with cultural practices such as avoiding working in fields with wet foliage, avoiding late pruning and watching the amount of N applied to plantings. □

Disease Briefs

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology

Downy mildew found on cucumber in Michigan

Downy mildew was found in two slicing cucumber fields on June 9th in Michigan according to Dr. Mary Hausbeck, vegetable pathologist at Michigan State University. Fields were planted by direct seeding or from transplants grown on site. To date, Downy mildew has not been detected in New Jersey or the mid-Atlantic region. As many of you remember, Downy mildew can become extremely destructive if not controlled timely and properly. Growers who brought in cucurbit transplants from the southeast should be extremely cautious and take precautions because the pathogen can survive on transplants. Remember Downy mildew epidemics usually start in the southeast (i.e. Florida) and works its way to the northeast as cucurbits are planted up the east coast. This year growers in the mid-Atlantic at some point may have to battle Downy mildew on two fronts depending on weather patterns and, if Downy mildew becomes an early problem in the Midwest like it has in our region the past two seasons. For more information on controlling Downy mildew in cucurbit crops please see the *2006 Commercial Vegetable Production Recommendations Guide*.

Late blight found on tomato in Pennsylvania

Late blight was detected in a tomato field on June 16th in Lancaster Co., PA according to Dr. Alan MacNab, vegetable pathologist at Penn State. According to Dr. MacNab disease development was at a very early stage with a few plants in 2 or 3 different areas of the field affected. The field had received 2 applications of mancozeb + copper before disease was detected. An aggressive spray program is underway involving the alternation of materials having some systemic activity tank mixed with a protectant. Original source of the disease organism is unknown; close scouting of nearby fields will continue. Dr. MacNab is recommending an immediate application of a “systemic” plus a protectant for all fields within a 50+ mile radius of Lancaster Co. In addition, before the next rainfall, for fields between 50 and 150 miles to the northeast of Lancaster Co., a similar application should be made. There have been no reports of Late blight in New Jersey to date. However, growers who have not started a regular weekly protectant spray program should do so. The isolate of the late blight fungus from tomatoes is not expected to be a problem on potatoes. Early indication is that the isolate is US-14 (similar to US-17 except that the US-14 isolate is Mating Type A2). This is similar to the 2004 situation in PA. In 2004, the US-14 isolate did not become troublesome on potatoes, so we expect this is “good news” for the potato growers. □

PEST NOTES FROM PAGE 2

potato leafhopper control, such as a pyrethroid, Lannate, Thionex, or dimethoate (Note: do NOT combine or tank-mix dimethoate with alkaline materials, such as copper fungicides). The use of neonicotinoid-class insecticide, such as Actara, Assail, Venom, or Provado, at this time will increase the potential for the development of insecticide resistance to this class of insecticides by the Colorado potato beetle. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal north and near normal central and south, averaging 70 degrees north, 70 degrees central and 70 degrees south. Extremes were 93 degrees at Canoe Brook on the 18th, and 44 degrees at Freehold on the 16th. Weekly rainfall averaged 0.00 inches north, 0.14 inches central, and 0.13 inches south. The heaviest 24 hour total reported was 0.57 inches at Trenton on the 14th to 15th. Estimated soil moisture, in percent of field capacity, this past week averaged 82 percent north, 75 percent central and 68 percent south. Four inch soil temperatures averaged 66 degrees north, 66 degrees central and 66 degrees south.

Weather Summary for the Week Ending 8 am Monday 6/19/06

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	.00	10.94	-4.04	93	52	72.	3	885	263	72
CHARLOTTEBURG	.02	12.31	-2.73	90	51	69.	3	693	220	71
FLEMINGTON	.00	13.17	-1.10	92	50	70.	1	848	201	75
NEWTON *	.00	7.58	-5.93	90	50	69.	2	465	-73	71
FREEHOLD	.00	12.72	-1.36	92	44	69.	-1	848	117	68
LONG BRANCH	.00	13.31	-.93	87	55	70.	1	774	107	54
NEW BRUNSWICK	.13	12.69	-1.08	82	55	70.	-1	904	129	79
TOMS RIVER	.00	9.83	-4.17	92	52	69.	0	835	172	50
TRENTON	.57	11.73	-1.05	91	55	70.	-2	934	111	64
CAPE MAY COURT HOUSE	.27	6.59	-5.81	86	56	69.	-1	859	122	54
DOWNSTOWN	.06	7.72	-4.94	91	49	68.	-4	904	60	59
GLASSBORO	.05	9.33	-4.32	90	56	72.	1	1052	229	52
HAMMONTON	.00	8.43	-4.86	92	51	70.	-2	969	154	51
POMONA	.19	8.91	-3.25	88	52	69.	-1	874	131	51
SEABROOK	.18	8.54	-3.47	91	53	71.	-1	1094	244	54
SOUTH HARRISON	.00	8.61	-4.98	90	55	71.	NA	1040	NA	NA

*some past data is missing and therefore cumulative values and departures will be off.

WES KLINE — GDD BASE 40 PINEY HOLLOW
 LAST WEEK 167 (Ending 6/12/06)
 THIS WEEK 202 (Ending 6/19/06)

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