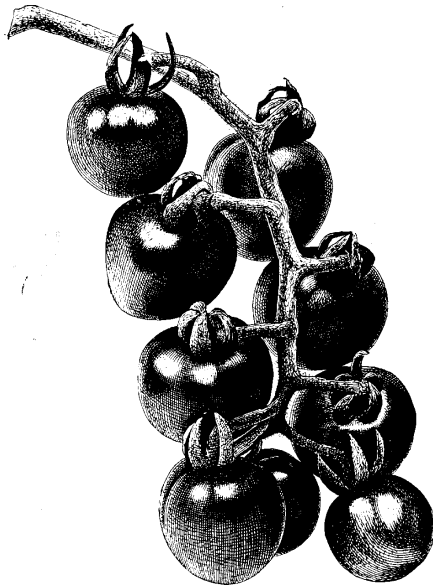


# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JULY 7, 1999



## INSIDE

IPM Update ..... 1

Vegetable Crops Diseases ..... 3

Pest Notes ..... 3

Direct Marketing Bus Tour .... 4

Weekly Weather Summary ..... 5

## IPM Update

*Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM*

### Sweet Corn

**European corn borer (ECB)** adult populations remain relatively low throughout the state with a few spots showing increases. This is most notable in the Cohansey area (see **ECB** distribution map). For the near future, pre-tassel and tassel stage sweet corn will likely need protection from larvae resulting from the first adult flight. The highest nightly **ECB** blacklight trap catches are:

Cohansey	28	Shirley	2	Farmingdale	1
Sergeantsville	2	Allentown	1	Hackettstown	1
Sewell	2	Drakestown	1	Manville	1
Sheppards Mill	2	Eldora	1	Sykesville	1

**Fall armyworm (FAW)** feeding has been found at low levels in some southern New Jersey whorl stage sweet corn plantings. This feeding is much more ragged in appearance than **ECB** feeding. Small larvae feed on the upper surface of leaves resulting in streaks that lead down into the whorl. As larvae grow, large holes appear in emerging leaves with worm feces easily seen in the whorl. This pest will also attack seedling stage corn, so scouting should begin shortly after plant emergence. Consider treatment when 12% or more plants are infested with **FAW** alone or in combination with **ECB**.

**Corn earworm (CEW)** adult blacklight trap catches are steady at low levels in most of southern New Jersey, and increasing slightly in the northern counties. Silking sweet corn plantings will need protection from this pest. Some blacklights are not catching individuals consistently enough to register silk schedules. In these cases, the regional **CEW** situation must be considered. In such situations, it is advisable to treat silking plantings on a weekly basis if other traps in the region are registering even light populations. The highest nightly **CEW** blacklight trap catches are:

Sewell	5	Belvidere	1	Phillipsburg	1
Pemberton	2	Denville	1	Seabrook	1
Sergeantsville	2	Hackettstown	1	Tabernacle	1
Allentown	1	Morristown	1	Woodstown	1

SEE IPM UPDATE ON PAGE 2

**General Sweet Corn Spray Schedule**

Silking corn: North 5 - 6 days  
Central 3 - 5 days  
South 3 - 4 days

\*These are general spray recommendations for large areas of the state. Growers can increase or decrease the intervals based on their own local situations.

**Tomato**

**Stinkbug** activity in blacklight traps has increased dramatically throughout the state within the last week. Many of the individuals that are being caught are known tomato pests. Tomato plantings with green fruit should be protected at this time. **Stinkbug** damage is somewhat difficult to find in the field, but is readily apparent in bulk bins. It appears as a whitish blotch on green fruit, which matures to bright yellow on ripe fruit. Beneath the blotch the flesh remains hard and corky. Repeated applications may be necessary to minimize damage through the harvest period.

**Peppers**

**ECB** adult counts are beginning to increase in blacklight traps in some areas of the state (see **ECB** distribution map). It is difficult to monitor this pest in the field, especially with the dense foliage now present on most peppers. We rely on the traps to indicate when the adult population is active. As the population increases to 1 to 2 per night in local blacklight traps, fruit should be protected on a 7-10 schedule.

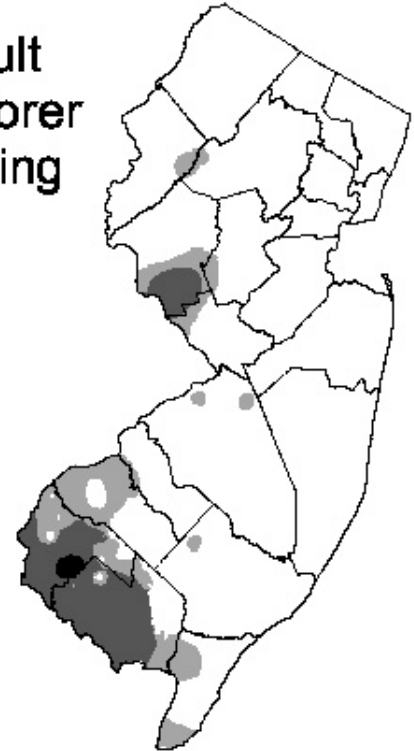
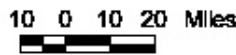
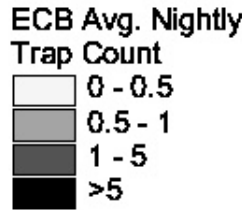
Large **tomato hornworm** larvae were found feeding in peppers in Atlantic County. The adults deposit round light green eggs singly on the undersides of the leaves. The larvae are light green and have a distinctive curved spine ('horn') on one end. The larvae will eat entire leaves and stems and will leave large brown/green droppings on the leaves and around the base of the plant. The larvae can be hard to find on the plant, but the feeding signs are usually easy to see.

**Snap Beans**

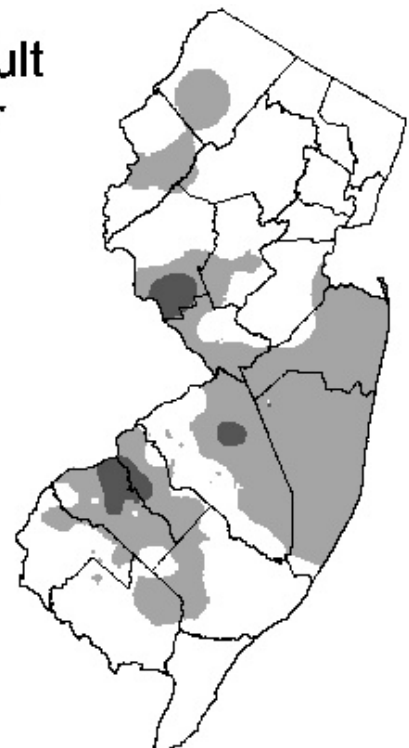
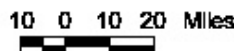
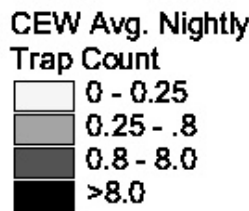
**ECB** adult counts are beginning to increase in some areas (see **ECB** distribution map). As adult counts increase to 1 to 2 per night snap beans will need a

treatment for **ECB** at the bloom and pin stages. Following the pin stage application, snap beans should be treated on a 7 day schedule until harvest if blacklight trap counts average 5 or more per night.

**Distribution of Adult European Corn Borer for the Week Ending July 7, 1999**



**Distribution of Adult Corn Earworm for the Week Ending July 7, 1999**



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

# Vegetable Crop Diseases

Stephen A. Johnston, Ph.D., Plant Pathology

✓**Bean:** For all fields being seeded at this time be sure to moldboard plow field prior to seeding to completely bury previous crop debris. Pythium and Rhizoctonia readily colonize fresh plant material near the soil surface, and then cause extensive amount of **post emergence damping-off** on newly seeded fields. Apply Ridomil Gold PC as an in-furrow treatment in addition to moldboard plowing for prevention.

✓**Beet:** Maintain applications of a copper fungicide as a foliar spray every 7-10 days for control of **leaf spots**.

✓**Cole crops: Clubroot** is present in several fields at this time. There is no control measure available during the growth of the crop. For future seedings, raise the soil pH to 7 or above; improve the drainage in the field; produce the crop on raised beds; and grade off the ends of the field to allow excess water to leave the field following a rainfall to reduce conditions favorable for infection to occur. For established fields with plants touching down the row, maintain foliar applications of maneb or Bravo every 7-10 days for prevention of **Alternaria leaf spot & Downy mildew**.

✓**Carrot:** Begin foliar applications of Bravo at this time, and repeat every 7-10 days until frost for control of **leaf blights**.

✓**Corn (sweet): Bacterial soft rot** is present in the whorls of some plants at this time. This is the result of injury to the whorl followed by splashing soil during a rainfall or irrigation. Bacteria present in the soil cause the infection at the site of injured tissue in the whorl.

✓**Cucumber:** Maintain foliar applications of Bravo + Benlate or Topsin M every 7-10 days for control of **foliar diseases**.

✓**Eggplant:** Maintain applications of mefenoxam (Ridomil Gold 4E, Ultra Flourish 2E) every 21 days for a total of 3 applications for the control of **Phytophthora blight**.

✓**Lettuce:** Apply soil fumigation now to fields that will be seeded in August for fall production to reduce the incidence of **Bottom rot & drop**. Prior to fumigating completely bury previous crop debris, and prepare the soil in a condition necessary for seeding (no clods, etc.) to ensure an optimum performance with the soil fumigant. Allow 2-3 weeks from the time of soil fumigation application and seeding the crop to allow the soil fumigant to leave the soil.

✓**Muskmelon:** Maintain applications of Bravo or mancozeb as a foliar spray every 7-10 days for the control of **Alternaria leaf blight**.

✓**Pepper:** Maintain applications of mefenoxam (Ridomil Gold or Ultra Flourish) via injection into drip irrigation systems every 21 days for a total of 3 applications to assist in controlling **Phytophthora blight**. When harvesting during periods of high night temperature (70F and above), do not use wash water prior to packing, or be sure to chlorinate wash water and maintain the wash water temperature higher than the internal fruit temperature to prevent **bacterial soft rot**, which is characterized by brown stems and collapsed fruit at the terminal market destination.

✓**Potato (white): Early dying disease** is present at this time in fields of 'Superior' potatoes. Infected plants are chlorotic, and there is marginal necrosis on the leaves. Control involves preplant soil fumiga-

tion or an application of a nematicide at planting for control of the **lesion nematode** that interacts with the fungus, **Verticillium**, to cause the disease. **Black leg** is present in some fields at this time. Infected stems have large, black, watery lesions present near the soil. The disease is caused by bacteria present in the soil. Bacteria enter the plant through wounds and then caused infection. There is no control at this time.

✓**Pumpkin & winter squash:** Once vines begin to run, begin a foliar fungicide program for **leaf diseases**. Apply Bravo at the first application date, and 7-10 days later apply Quadris for broad spectrum disease control. Repeat this pattern of fungicide alternation full season. Quadris received a full Federal registration on all cucurbits in March of 1999. Apply Quadris at 11 – 15.4 fl oz/A, and do not apply within 1 day of harvest.

✓**Tomato:** Maintain foliar applications of Bravo alternated with Quadris every 7-10 days for control of **foliar & fruit diseases**.

✓**Watermelon:** Maintain applications of Bravo + Benlate or Topsin M every 7-10 days for control of **anthracnose & gummy stem blight**. □

## Pest Notes

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

✓**General:** The hot, humid weather presents ideal conditions for **spider mite** problems in most vegetable crops. Populations can rapidly increase, and control becomes very difficult when the population is high. Effective miticides include AgriMek EC, Kelthane, Vendex, and Cinnamite. Other insecticides that are labeled for **spider mite** control include Dibrom, Metasystox-R, Monitor, Vydate, methyl-parathion EC, dimethoate (Cygon), and azinphosmethyl (Guthion). Consult the label for each material for all crop uses, restrictions and directions. With some crops, such as squash, treatments should be initiated when only 10-15% of the crown leaves is infested. Thresholds vary for different crops, but as

SEE PEST NOTES ON PAGE 4

a general rule the thresholds are lower for most crops at this time of the year, and higher later in the season

Spinosad SC (Dow Chemical Company) was awarded the 1999 Presidential Green Chemistry Challenge Award. Spinosad is a metabolite of a plant-derived natural product that is effective against many insect pests, and has low human and environmental risks.

The black light traps and pheromone traps are catching hundreds of **oriental beetles** and **June beetles** per night. These insects are the adults of **grubs** that may attack the roots of many crops, including vegetables. However, there is no data available to relate the trap catches to potential damage in crops such as potato and sweet potato. **Grubs** leave a shallow; 1/4" wide track on the surface of the potato, and only occasionally burrow into the potato. **Grubs** will begin to appear in the soil within the next 1-2 weeks as the eggs hatch and larvae develop. Currently, there are no labeled insecticides available for control of **grubs** on potatoes at mid-summer.

In southern New Jersey, and in Delaware, the insect activity of **aphids**, **corn earworms**, **fall armyworms**, **beet armyworms**, and **European corn borer** is low. It is likely that the activity of these pests will increase over the next week or two.

✓**Cabbage:** The USDA reports that a few rows of collards planted around the cabbage field protect the cabbage from **diamondback moth** attack. The **diamondback moths** prefer collards, and deposit their eggs on the collard greens, without visiting the nearby cabbage. Between 75-100% fewer sprays were needed in cabbage that had collards planted around it than in cabbage without collards.

✓**Eggplant:** Second-generation **Colorado potato beetles** are found in low numbers on eggplant. Monitor these pests, and if the numbers increase, or damage increases, treat with Align, Raven, cryolite, Guthion, SpinTor, Thiodan, or Vydate. Several growers report that the acceptable control has been obtained with pyrethroids (Asana, etc). In the past, pyrethroids were ineffective against **potato beetles**, but it is possible that in some areas of New Jersey the pyrethroids can be effective.

✓**Onion:** The number of **onion maggot flies** caught in the fly traps has slowly but steadily decreased, indicating an end of the generation. Numbers should drop off completely for a short time, then begin increasing again. Few flies should be found for the next 1-2 weeks, but there is still another generation that will become active after that time.

✓**Potato:** Many large **yellow underwing moths** are being caught in the black light traps. These moths are the adults of **cutworms** that are known to attack various vegetables, including potatoes and sweet potatoes. The moths deposit eggs in the soil near potato plants, and the larvae feed on the tuber (or roots). Damage appears as deep holes or gouges in the potato. Other **cutworm** numbers are still low (**black cutworm**, **dingy cutworms**, etc), but numbers should begin increasing this month. All of these **cutworms** have the potential to attack nearly all vegetable crops, including white and sweet potatoes. There are no known thresholds for treatment of these pests, but monitoring can be done by looking for damaged leaves on the lower portions of the plants. **Cutworms** are night feeders, so it is difficult to look for the larvae. When you find damaged leaves, dig in the soil up to 3-4" deep around the base of the plant for the cutworms. Effective treatments include Sevin 5B bait, or pyrethroid sprays directed at the base of the plant.

✓**Tomato:** Agricultural agents report that **thrips** are readily found

in tomato flowers. Several species of **thrips** can spread Tomato Spotted Wilt disease, and are a serious threat to younger plants. It is likely not necessary to treat for **thrips** at this time. SpinTor, Provado, Monitor, and Guthion are labeled for control of **thrips** on tomatoes.

High numbers of adult **stinkbugs** are being caught in the both black light traps and pheromone traps. Monitor fields to determine if these pests are present, or if damage to fruit is increasing. Effective treatments include the pyrethroids Baythroid and Warrior, and the non-pyrethroids Guthion, Monitor and Thiodan. California reports that dimethoate and Lannate are effective in controlling **stinkbugs** in tomatoes. □

## Direct Marketing Educational Bus Tour

Tuesday, August 10, 1999

Sponsored by the NJ Direct Marketing Association, Rutgers Cooperative Extension, and the NJ Department of Agriculture in consultation with the PA Retail Farm Market Association and Penn State Cooperative Extension.

A bus tour of 3 southern New Jersey and 2 south eastern Pennsylvania retail farm markets with ideas, food, fun, and education. Successful market techniques will be highlighted, with emphasis on

- Merchandising
- Signage
- Diversification
- Store layout and design
- Display techniques - Pricing
- Successful innovative products and ideas
- Past and future obstacles

The tour will include visits to Heritage Station, Linvilla Orchards, Springdale Farms, and Wolff's Farm Market.

**For more info call (609) 984-2278.**

# Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal. Extremes were 101 degrees at Canoe Brook and New Brunswick on the 5th and 58 degrees at Charlotteburg on the 30th and the 1st. Weekly rainfall averaged 0.42 inches north, 0.53 inches central, and 0.85 inches south. The heaviest 24 hour total was 0.99 inches at Seabrook on the 29th to the 30th. Estimated soil moisture, in percent of field capacity, this past week averaged 61 percent north, 50 percent central and 50 percent south. Four inch soil temperatures averaged 76 degrees north, 77 degrees central and 77 degrees south.

## Weather Summary for the Week Ending 8 am Monday 7/5/99

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.08	10.59	-5.36	98	64	79.	8	1105	152	44
CANOE BROOK	.45	11.06	-6.00	101	66	80.	8	1287	342	58
CHARLOTTEBURG	.62	12.76	-4.50	95	58	76.	8	909	162	55
FLEMINGTON	.25	8.91	-7.44	99	65	80.	8	1167	189	55
LONG VALLEY	.71	10.42	-7.07	94	62	77.	8	957	143	59
NEWTON	.00	.00	.00	0	99	0.	0	0	0	0
FREEHOLD	1.09	11.48	-4.52	99	70	81.	8	1315	241	67
LONG BRANCHH	.98	12.13	-3.88	96	66	78.	6	1142	140	52
NEW BRUNSWICK	.53	11.95	-3.73	101	68	80.	6	1227	83	63
PEMBERTON	.15	12.71	-2.89	100	65	80.	7	1306	196	23
TOMS RIVER	.19	6.35	-9.65	97	66	79.	5	1113	109	34
TRENTON	.22	12.84	-1.86	96	64	79.	5	1104	-89	33
BRIDGETON	.00	.00	.00	0	99	0.	0	0	0	0
CAPE MAY COURT HOUSE	.03	8.89	-5.24	95	69	80.	7	1229	145	19
DOWNTOWN	1.30	14.03	-.47	95	67	80.	6	1260	50	65
GLASSBORO	.00	.00	.00	0	99	0.	0	0	0	0
HAMMONTON	1.02	12.68	-2.63	96	68	80.	6	1252	70	61
POMONA	.08	11.99	-1.86	97	68	80.	7	1210	123	23
SEABROOK	2.58	15.26	1.29	94	67	80.	6	1379	162	78
ATLANTIC CITY MARINA	.07	9.53	-3.72	97	68	79.	7	1250	235	19

WES KLINE — GDD BASE 40 PINEY HOLLOW

Last Week 220 Ending 6/28/99)

This Week 281 Ending 7/5/99)

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