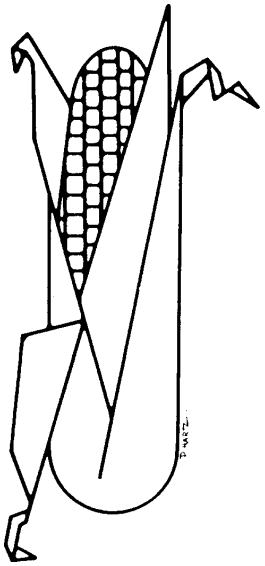
RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION $1.50 JULY 28, 1999



INSIDE

Vegetable Crops Diseases

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

✔ **Bean:** Avoid irrigation late in the evening and at night to reduce conditions favorable for the development of **Pythium root & pod rot.**

✔ **Beet: Pythium root rot** is present in some young fields at this time. Infected plants completely wilt, and there is a black lesion at the base of the stem extending up the leaf petioles. Use of Ridomil Gold 4E as a preemergence application at seeding would have provided control of this disease. Avoid irrigation late in the evening and at night to reduce conditions favorable for the development of this disease.

✔ **Cole crops:** Maintain foliar applications of Bravo or maneb every 10 days for the prevention of **Alternaria leaf spot & downy mildew.**

✔ **Corn (sweet):** Observe fields for the presence of **rust.** The disease first appears on older leaves in young fields. Plants have the appearance of nitrogen deficiency (chlorotic older leaves). Examination of chlorotic leaves reveals orange pustule of rust if present. If plantings are in the whorl stage or younger, apply a fungicide as a foliar spray for control.

✔ **Cucumber:** Apply Ridomil Gold 4E in a 7-inch band over the row after seeding to prevent **damping-off.** Avoid late evening and night irrigation to reduce conditions favorable for the development of **damping-off** in new seedings, and to avoid **cottony leak** on the fruit in mature fields. After vines begin to run, apply foliar applications of Bravo + Benlate or Topsin M every 7-10 days for control of **foliar diseases.**

✔ **Eggplant:** Some fields have a high incidence of plants with chlorotic older leaves. These plants are exhibiting **moisture stress**, and are not infected with a disease. Be sure to supply ample irrigation due to the high demand for moisture that the crop requires. Older leaves wilt during periods of moisture stress, and if the stress is severe, the leaves will turn chlorotic, and eventually fall from the plant. **Verticillium wilt** differs from moisture stress by symptoms (olive green blotches on leaves) appearing only on one – two branches or only on a portion of a leaf. Symptoms progress up the entire length of the branch, and are not restricted to the older leaves. Another problem present in some fields at this time is **air pollution damage.** Older leaves in some fields have necrotic flecks present on the upper surface. This is **ozone damage** (air pollution) resulting from the high concentrations of ozone that developed during hot, humid weather.

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✔ **Lettuce:** For fall plantings, apply Ridomil Gold 4E as a preemergence application after seeding to prevent **damping-off.** Avoid irrigation late in the evening and at night to avoid conditions favorable for the development of the disease.

✔ **Pepper:** Maintain a uniform supply of soil moisture to prevent **blossom end rot**. Apply foliar applications of a copper fungicide + maneb with a spreader sticker to protect against **Phytophthora blight & anthracnose,** and repeat every 7-10 days. Avoid irrigation late in the evening and at night to reduce conditions favorable for the development of **Phytophthora blight & Pythium root rot.**

✔ **Pumpkin & winter squash:** Maintain applications of Bravo every 14-20 days, and apply Quadris on alternate 14-20 days for prevention of **foliar & fruit diseases.** Be sure to use ground application, and try to get as much coverage of all the leaf and stem surfaces as possible.

✔ **Squash (summer): Blossom blight** is present on fruit being harvested at this time. Infected fruit have a brown, watery rot present at the blossom end. The fungal pathogen becomes established on the blossom during humid conditions, and then progresses from the blossom to the fruit. Use of drip irrigation to reduce the amount of moisture in the canopy reduces disease incidence. Apply Ridomil Gold/Copper as a foliar spray every 14 days to assist in control of **Phytophthora blight.**

✔ **Tomato:** Maintain applications of Bravo, alternating with Qaudris every 7-10 days for control of **foliar & fruit diseases.**

✔ **Watermelon:** Maintain applications of Bravo + Benlate or Topsin M as a foliar spray every 10 days for control of **anthracnose & gummy stem blight.** ❑

Pest Notes

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

✔ **General:** The Federal EPA approved a label for the use of Capture 2EC on sweet corn, succulent peas and beans, brassicas (broccoli, Chinese crops, cabbage, etc), canola, crambe, various cucurbits, and eggplant for control of various insect pests. Capture (bifenthrin) is effective against various **caterpillar** pests, plant and **stink bugs**, **aphids**, **beetles**, **thrips** and other insect pests. Rates vary from 2.1 to 6.4 fl oz/acre, depending on pest species. As a general rule, up to 2.5 oz is effective against most pests, but 5-6 fl oz will be needed for **spider mite** control. Consult label for all rates, restrictions, and directions for use of this product.

The current hot temperatures occurring throughout New Jersey can affect your spray program. Apply sprays either early in the morning or later in the afternoon when temperatures cool down to avoid foliage damage caused by hitting the hot plant with a cold spray in the heat of the day. Also, there will be less evaporation/volatilization of the insecticide when temperatures are cooler and likely less degradation of the active ingredient if not applied in the direct sunlight.

✔ **Corn (sweet):** Numbers of **European corn borer** and **corn earworm moths** being caught in the blacklight trap at RAREC are still low, but a few moths are being caught each night. Monitor **moth** flight activity closely during the next week or two for sudden increase in trap numbers, as a population increase is expected for each of these pests during this time. Sweet corn in the late tassel to silk stage is susceptible to damage.

✔ **Eggplant:** Two pests that have suddenly appeared in eggplant fields are **spider mites** and **lacebugs**. Both of these pests are tiny and found on the lower leaf surfaces, often going unnoticed until damage appears on the upper surface of the leaves. These pests rapidly increase in numbers under hot, dry weather conditions. For control of eggplant **lacebugs**, use malathion, SpinTor, or Vydate L (of these, SpinTor is likely most effective and malathion is likely least effective). For **spider mites**, use Capture 2EC, MetaSystox-R, Vendex, or Vydate. The damage from each of these pests is similar when viewed from the upper leaf surface, so determine which pest is causing the damage before considering any control measures.

✔ **Pepper:** The **European corn borer** moth flight activity has been sporadic during the past 2 weeks, ranging from 2 to 7 **moths** caught per night in the blacklight trap. Plants with fruit greater than 0.5" in diameter should be protected from **borer** damage using Asana, Baythroid, Lannate, Orthene, permethrin, or SpinTor. Days-to-Harvest is important; so select a spray material based on next fruit pick. All of these materials are effective against the **corn borer** when applied on a 5-7 day schedule.

✔ **Tomato:** Tomato and tobacco **hornworm** adults have been caught in the blacklight traps each night during the past 7-10 days. The larvae of these moths (**hornworms**) can consume much foliage as they get larger. **Hornworms** are easily controlled using any of the "Bt" biological insecticides, as well as materials such as cryolite, pyrethroids, Lannate, SpinTor, and Monitor. Monitor fields, and spray when **worms** are still small. Coverage is important, thus high gallonage/high pressure is recommended. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal. Extremes were 103 degrees at Pemberton on the 20th and 60 degrees at Charlotteburg on the 21st. Weekly rainfall averaged 0.23 inches north, 0.36 inches central, and 0.42 inches south. The heaviest 24 hour total was 0.62 inches at Pomona on the 22nd to the 23rd. Estimated soil moisture, in percent of field capacity, this past week averaged 58 percent north, 47 percent central and 44 percent south. Four inch soil temperatures averaged 78 degrees north, 78 degrees central and 77 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/26/99

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.22	10.88	-7.99	98	66	80.	6	1682	248	45
CANOE BROOK	.35	12.09	-7.87	102	66	82.	7	1910	488	59
CHARLOTTEBURG	.02	13.07	-7.06	98	60	78.	5	1414	239	45
FLEMINGTON	.46	9.42	-9.89	97	67	80.	6	1751	279	57
LONG VALLEY	.08	10.54	-10.13	93	69	79.	6	1492	239	45
LONG BRANCH	.59	13.05	-5.58	92	68	77.	2	1702	197	44
NEW BRUNSWICK	.62	12.63	-6.02	99	68	81.	5	1840	171	64
PEMBERTON	.20	13.08	-5.60	103	61	80.	5	1910	290	25
TOMS RIVER	.20	6.80	-12.35	97	64	78.	3	1686	174	30
TRENTON	.20	13.09	-4.72	99	65	79.	2	1673	-62	30
CAPE MAY COURT HOUSE	.54	10.33	-6.22	94	63	79.	3	1805	194	44
DOWNSTOWN	.44	15.01	-2.40	95	62	80.	3	1845	98	41
HAMMONTON	.28	13.29	-5.12	98	62	80.	3	1846	125	26
POMONA	.68	13.68	-2.90	96	60	78.	2	1795	193	52
SEABROOK	.39	15.95	-.89	96	65	80.	3	1973	219	37
ATLANTIC CITY MARINA	.20	10.50	-5.38	96	70	78.	3	1830	313	31
WOODSTOWN	.61	15.33	-3.29	101	61	81	NA	1974	NA	NA
WES KLINE — GDD BASE 40	PINEY HOLLOW		Last Week	235	(Ending 7/19/99)		This Week	279	(Ending 7/26/99)	

Vegetable Twilight Meeting

August 16, 1999
5:30 p.m. until dark
Rutgers Agricultural Research and Extension Center
Upper Deerfield, NJ

The plots will be open at 5:30 p.m. Welcome and introduction are at 6:00 at the pavilion, followed immediately by a wagon tour.

The following plots will be included in the tour:

- ❖ Asparagus variety trials
- ❖ Processing tomato varieties
- ❖ Phytophthora resistant pepper varieties
- ❖ Bacterial leaf spot resistant pepper varieties
- ❖ Fungicides, soil fumigation and biological control agents for control of Phytophthora blight in peppers
- ❖ Sweet corn variety trial (past peak maturity)
- ❖ No-till planting of squash
- ❖ Reflective mulches for pepper production
- ❖ Nutrient management trials with tomato and peppers
- ❖ IPM trial with peppers, and insect control in vegetables

Important Note: Fresh market staked tomato variety trials (round and plum) are located on growers' farms in 1999. If you are interested in visiting these trials, please contact Stephen A. Garrison for information at (856) 455-3100.

IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

Cole Crops

Flea beetle damage is heavier than usual on many plantings of cabbage, broccoli and greens at this time. Plantings that are stressed by heat and insufficient water are not producing new foliage quickly enough to compensate for that lost to **flea beetles**. It is critical that young plantings be scouted for the presence of **flea beetles** and their damage. Consider treating when one or more **flea beetles** are found on each plant, and damage is occurring. Overhead irrigation often is as effective as an insecticide treatment in temporarily controlling this pest.

Peppers

The second generation adult flight of **European corn borer (ECB)** is well underway throughout the state (see map). All plantings with fruit should be protected on a 7-day schedule for **ECB**. This pest is difficult to monitor in the field and preventive measures are needed when traps indicate that moths are flying. Often, the only indication of an **ECB** infestation is the increasing occurrence of soft-rotted fruit.

Monitor plantings at least weekly for the presence of various foliage feeders, including **cabbage loopers (CL)**, **tomato hornworms**, and the **beet** and **yellow-striped armyworms (BAW, YSAW)**. All of these pests have been found in low numbers in various fields in the southern counties. It is important to identify which pest is present, particularly for **BAW** because they can be difficult to control with the usual worm products. **BAW** pheromone trap counts have been increasing in the last week, but are still not at high levels. Look for ragged or "window pane" type feeding in the tops of the plants. Usually more than one larva will be present on the undersides of the damaged leaves. The larvae are green to greenish-black with a dark spot on the side behind the head.

Low levels of **leafminer** damage were seen on leaves in peppers in Atlantic and Cumberland counties. **Leafminers** are not usually a problem, especially in older plantings with a lot of foliage. However, monitor fields at least weekly to determine if the number of new leaf mines is increasing, especially on the later plantings. The mines appear on the leaf as circular or serpentine pale blotches. Newer mines are white or cream-colored, and older mines are yellow or brown. This pest can cause defoliation through excessive leaf mining if population explosions occur.

Tomatoes

Stinkbugs are still active in blacklight and pheromone traps, and fruit damage can be found in some plantings. Periodic treatments for this pest continue to be necessary, especially if adjacent fields or weedy edges have been recently mowed. Low levels of **leafminer** damage were found in an unsprayed tomato plot. The mines appear on a leaf as a circular or serpentine blotch around the size of a dime. This pest is not usually a problem on older plantings. However, monitor later tomato plantings at least weekly to determine if new leaf mining is increasing throughout the field.

Sweet Corn

The second **ECB** flight is underway throughout the state (see map). Feeding has begun to appear on whorl stage plantings in the southern and central counties. Larval infestations by this pest often coincide with larval infestations of **fall armyworm (FAW)**. Scout fields for both the presence of "shot hole" type feeding from **ECB**, and the more ragged type of foliar damage caused by **FAW**. Consider treating when 12% or more plants are infested with **FAW** and/or **ECB** in combination. The highest nightly **ECB** blacklight trap catches are:

Allentown	23	Little York	17	Sewell	11
Ellisdale	22	Shirley	17	Woodstown	10
Hackettstown	21	Mullica Hill	13	Georgetown	8
Crosswicks	17	Chester	11	New Egypt	8

Corn earworm (CEW) adult catches have increased considerably over the last week (see map). Increases have been most notable in the central counties, although the population is intensifying all around the state. All silking sweet corn plantings should be protected from ear infestations of **CEW** at this time. The highest nightly **CEW** blacklight trap catches are:

Centerton	22	Dayton	6	Farmingdale	5
Ellisdale	17	East Vineland	6	Georgetown	5
Crosswicks	15	Millstone	6	New Egypt	5
Allentown	8	Seabrook	6	Shirley	5

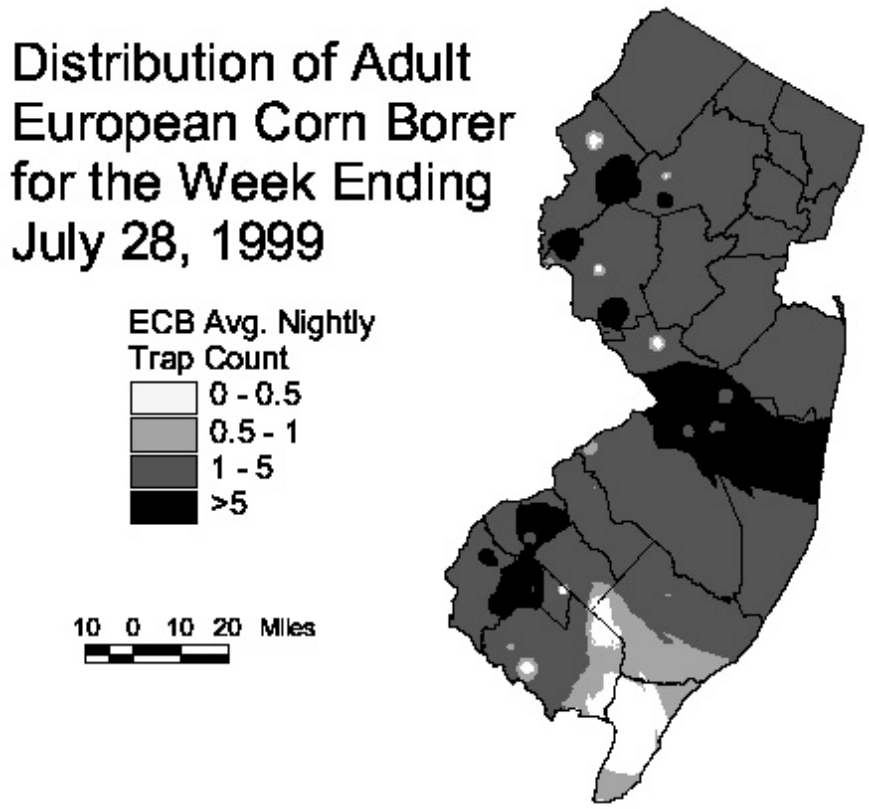
Garden State Pest Management has reported **corn leaf rust** in Burlington County. Currently, this infection is on tassel-stage sweet corn, and is not likely to affect yield. Some varieties are highly susceptible to this disease. When scouting for insects, be sure to note the presence of reddish-colored **rust** pustules. This is particularly important on seedling and whorl stage sweet corn. Susceptible varieties may sustain a reduction in marketable yield if the infection begins in the young whorl stage. Consider a fungicide application if **rust** is discovered on seedling or whorl stage sweet corn.

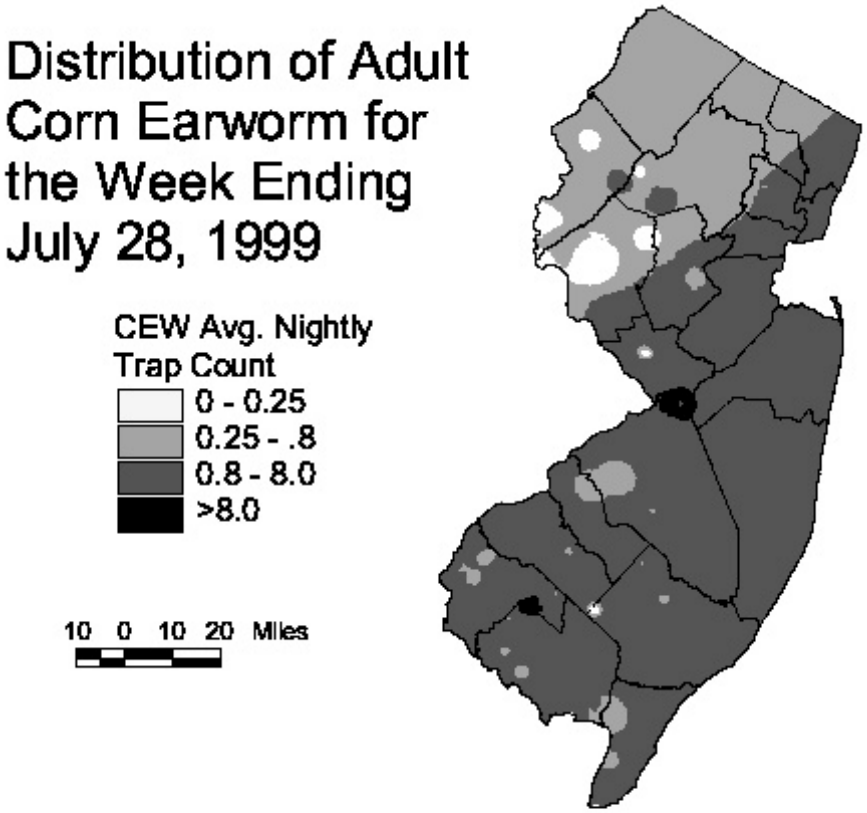
General Sweet Corn Spray Schedule

Silking corn:	North	4 – 5 days
	Central	3 days
	South	3 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.*

SEE ECB AND CEW DISTRIBUTION MAPS NEXT PAGE





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