

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

AUGUST 19, 1998



Scouting Tips: Cole Crops

Sally Walker and Kristian Holmstrom, Program Associates
Vegetable IPM

Presented below are scouting procedures for heading-type (cabbage, broccoli and cauliflower) and leafy-type (kale, collards, etc.) cole crops. The procedure for leafy type cole crops is the one used by the Vegetable IPM Program. The heading-type scouting procedure outlined here is more conservative than the one used by the Vegetable IPM Program, but does not require identification of the various lepidopterous pests.

General Scouting Procedure

Check all plantings weekly from transplanting or seedling emergence through harvest. Examine 50 plants, 5 plants in 10 random locations throughout a planting for the presence of insects and diseases. On each plant all leaf surfaces must be checked, including the youngest inner leaves.

Flea Beetle (leafy and heading types)

Within 1 week of transplanting or seedling emergence, check 50 plants for the presence of **flea beetles** and their damage. Young plants are particularly at risk for damage from **flea beetle** and may require scouting 2 times a week for the first 2 to 3 weeks. Treat when **flea beetles** are 1 or more per plant or damage is occurring.

Imported Cabbageworm, Cabbage Looper and Diamondback Moth (heading types)

Check 50 plants for the presence of **caterpillars**. It is important to check beneath the leaves and near the center of the plants as larvae are often found there. As heads begin to develop on plants, check beneath them as well. Treat when 20% or more plants are infested with one or more larvae prior to heading. Treat when 5% or more plants are infested and heads are maturing. Continue to monitor after treatments as **diamondback moth** larvae can be difficult to control.

Imported Cabbageworm, Cabbage Looper and Diamondback Moth (leafy types)

Check 50 plants for the presence of caterpillars. Treat when 20% or more plants are infested with any larvae prior to mid-May and after mid-September. From mid-May to mid-September, treat when 12% or more plants are infested, as larvae will develop more quickly under warmer conditions.

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Pest Notes

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

✓ **General** - There is much concern about recent reports of radium in South Jersey well water and the potential effect on the water supply, vegetable production, etc. The reports thus far state that if 10,000 people drink 2 liters (1/2 gallon) of water every day for the next 70 years, one of those people will develop a cancer due to the radium. People have already asked if they should get bottled water, or a water softener, etc. If you rush to the store for bottled water, be careful: the National Highway Safety commission states that your chances of being killed in a car accident going to the store (within 25 miles) are much, much greater than the risk of drinking your tap water for the next 70 years (data reported by J. Kinkade).

✓ **Corn (sweet) - European corn borer** activity is still high, and sprays for ear protection are still justified. The **corn borer** is not difficult to manage in sweet corn, but thorough coverage of the ear zone is important because these pests can enter the ear from any point (the tip, the side, the shank). Effective materials include Ambush, Pounce, Baythroid, Larvin, and Warrior. Sprays should be continued as long as **borer moths** are active and silks are fresh. Consult pg. 139-140 of the [1998 Commercial Vegetable Production Recommendations for New Jersey](#) for complete information on **European corn borer** (and other worm pests) management in sweet corn.

✓ **Pepper - European corn borer** activity is still high, and peppers at the Rutgers Agricultural Research and Extension Center research plots are showing a 30% or more infestation by the **corn borer**. Most effective materials for **corn borer** on peppers are Baythroid, Pounce, Ambush, and Orthene. Consult label of each product for days-to-harvest information before use because peppers are picked frequently (Orthene has a 7-day wait to harvest).

✓ **Potato (white)** - some growers report that a strange **cutworm** has caused some small holes and gouges in tubers just before harvest. Bob Moore brought one of these pests into the lab, and it is the **Yellow Striped Armyworm**. This pest is closely related to the **beet** and **fall armyworm**. The **yellow-striped armyworm** is not normally a serious pest of any crop in New Jersey, but it has been found in relatively high numbers on several crops, including cabbage and peppers. It is normally a leaf feeder, and we could find no reports that it enters the soil to damage tubers, so this is probably a first. At this point in time, there is no control method available or possible. More information will be presented at the Vegetable Growers Association meeting in January.

✓ **Tomato - stink bug** damage is still appearing on tomato fruit in research plots. Lab and field tests show that Warrior is one of the most effective materials for **stink bug** control. However, **stink bugs** are very mobile

Product Reputation Goes a Long Way

Michelle Infante, Gloucester County Agricultural Agent

Do you package *all* of your produce in boxes with your farm's name on the side? I hope not. Using a recognizable label or placing your name on the side of a produce box is a great way to develop a market. However, it may also be the downfall of your business if used all of the time. A broker or a chain store buyer makes him or herself aware of different brand names and will often reject or request a product based on the past quality of the individual brand or farm.

When your produce is at its peak quality your brand and farm name should be on the box of your number one grades. However, for your commercial or off-grades use a *plain box* that does not contain your logo or farm name. After all, you do not want to promote your seconds. Also, if you are at the end of picking a field and the quality is still acceptable but not your best, consider using the plain box for that harvest.

Plain boxes that are not customized are less money and in the long run will help keep your good name. In addition, once you build that reputation for quality for your label you may see a slightly higher price for your product, above the average market price. Growers take great strides and some extra time to grow a premium product, but there will always be a percent of the crop that is marketable but not the best. Let's promote our farms based on the best produce we grow, pack, and ship. A good reputation for quality goes a long way. □

insects, and more than 1 application may be needed to reduce the population. Baythroid, Monitor (New Jersey only) and Thiodan will also reduce the **stink bug** population.

Spider mites have been causing some damage on certain tomato varieties. It is likely that the current cool weather will slow the **spider mite** population increase. Monitor the population and damage before applying any miticide, and if the problems persist, consider the use of either Kelthane or AgriMek for **spider mite** control. As the season winds down, there will be less need for **spider mite** control on tomatoes.

Also monitor closely for **hornworm** damage or larvae. We are still catching 3-4 **hornworm moths** in the blacklight trap over 1-2 nights, and these pests will deposit eggs on tomato plants. The **hornworm** larvae will feed on both foliage and on the fruit. If you find **hornworms** or their damage, refer to pg. 150-151 of the [1998 Commercial Vegetable Production Recommendations for New Jersey](#) for more information on effective management materials. □

Vegetable Crops Diseases

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

✓ **Asparagus:** Maintain applications of mancozeb as a foliar spray every 7-10 days for control of **rust**.

✓ **Beans, lima & snap:** Recent rains have resulted in wet soil. If soil is wet 6-10 days before bloom, a fungicide should be applied when 70-80% of the plants have one or more open blossoms for control of **white mold (Sclerotinia)**. A second application needs to be made 6 days after the first application if soil remains wet and blossoms are still present. Add a spreader sticker to each fungicide application to enhance activity.

✓ **Cole crops:** On new seedings, apply Ridomil Gold 4E in a 7-inch band over the row for control of **damping-off** and early season control of **downy mildew**. Maintain applications of maneb or Bravo every 7-10 days for the control of **Alternaria leaf spot** and **downy mildew**.

✓ **Carrots:** Maintain applications of Bravo every 7-10 days for control of **leaf blights**.

✓ **Cucumber:** **Angular leaf spot** continues to appear in several fields at this time. Apply a copper fungicide + mancozeb as a foliar spray every 7 days for control, and do not work in fields while the foliage is wet.

✓ **Eggplant:** Maintain foliar applications of a copper fungicide + maneb + a sticker every 7-10 days for control of **Phomopsis & Phytophthora fruit rots**. **Internal blossom end rot** is present in some fruit being harvested at this time. Fruit with this condition have no external symptoms; however, the area around the seeds inside the fruit is necrotic. Maintain a steady supply of soil moisture with supplemental irrigation during dry periods to minimize this condition.

✓ **Leek:** Maintain foliar applications of Bravo every 10 days for control of **purple blotch**.

✓ **Lettuce:** Apply Ridomil Gold 4E in a 7-inch band over the row after seeding for control of **damping-off**. Apply Ronilan or Rovral as a directed spray to the base of the plants and surrounding soil after thinning, 10 and 20 days later for control of **drop (Sclerotinia)**. Use of Rovral will also control **bottom rot (Rhizoctonia)**.

✓ **Pepper:** Maintain foliar applications of maneb + a copper fungicide + a spreader sticker for control of **bacterial leaf spot & Phytophthora blight**. **Stem rot (bacterial soft rot)** is present on fruit shipped to market at this time. Infected stems on fruit turn brown to black by the time they reach terminal markets. Cool fruit as soon as possible after harvest. If washing fruit after harvest, be sure to use wash water that is warmer than the internal temperature of the fruit to prevent uptake of wash water contaminated with bacteria. Also, add chlorine to the wash water to destroy bacteria present.

✓ **Pumpkin & winter squash:** Maintain applications of Bravo + a copper fungicide every 7-10 days for control of **foliar & fruit diseases**.

✓ **Spinach:** Apply Ridomil Gold 4E in a 7-inch band over the row immediately after seeding for control of **damping-off** and early season control of **blue mold & white rust**. Consider using the variety Vancouver this fall to reduce incidence of **white rust**. This variety possesses resistance to the disease and has good horticultural characteristics.

✓ **Squash (summer):** Maintain applications of Ridomil Gold/Bravo as a foliar spray every 14 days for control of **Phytophthora blight**.

Twilight Horticulture Research Meeting for Commercial Producers

September 2, 1998

6:00 p.m. - 8:30 p.m.

Rutgers Snyder Research and
Extension Farm, Locust Grove
Road, Pittstown, NJ
(Hunterdon County)

Tour and Review Current Vegetable
and Fruit Research Plots.

Sponsored by Rutgers Cooperative
Extension. For more information call
Peter Nitzsche at Rutgers Cooperative
Extension of Morris County at 973-285-
8307.

SCOUTING TIPS FROM PAGE 1

Diseases

When scouting for lepidopterous
pests, be sure to check for the presence
of **downy mildew** and **alternaria**.

Downy mildew appears as small purple
spots or larger yellowish blotches on the
upper surface of leaves with cottony
purplish growth on the lower surface.

Downy mildew generally occurs later in
the season. **Alternaria** appears as brown
target-shaped spots on leaves, becoming
more severe as leaves mature. The
presence of these diseases indicates that
treatment is necessary. □

✓ **Tomato: Early blight (Alternaria)** is
present in several older fields (where
harvest is nearly complete) of staked and
ground tomatoes resulting in complete
defoliation. Destroy these fields as soon
as possible to reduce inoculum that will
spread to younger fields. Maintain foliar
applications of chlorothalonil every 14
days and on alternate 14 days apply
Quadris for control of **early blight**.
Quadris has a 24C registration in New
Jersey for a 1 day preharvest interval.

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

Vegetable IPM Update

Kristian E. Holmstrom and Sally Walker, Program Associates in Vegetable IPM

Beans

European corn borers (ECB) continue to be a threat to fresh market and processing snap bean plantings. Target sprays to the bud-early bloom stage and the late bloom-early pin stage for **ECB** control. Based on the blacklight trap catches in the southern counties, a 6-7 day spray schedule is warranted from the pin stage through harvest.

Corn earworm (CEW) adult counts have greatly increased in blacklight traps in the southern counties. Begin regularly scouting lima bean fields for the presence of larvae. Treatment will be needed if you find 1 larva per 6 foot of row, and if 50% of the larvae are at least 1/2 inch or longer. See the [1998 Commercial Vegetable Production Recommendations](#) for control and threshold information.

Peppers

European corn borer (ECB) pressure is moderate to high in most counties. Moths continue to be seen flying in the fields we are scouting, and fruit infestation by small **ECB** larvae has been high in our unsprayed test plots in Salem and Burlington Counties.

In Cumberland and Atlantic Counties, **fall armyworm (FAW)** and **beet armyworm (BAW)** adult counts have increased again in pheromone traps located in pepper fields. Treatments for pepper fruit in these counties should target both **ECB** and the **armyworms**.

Corn earworm adult counts have increased as well in most counties. As the sweet corn acreage declines, peppers may be a target crop. Expect higher numbers of **earworms** and **armyworms** from weather patterns moving north from the southern states.

Stinkbug adults and damage have been seen in our unsprayed test plots. The fruit damage appears as white to bright yellow star-shaped blotches or cloudy spots underneath the surface of the fruit.

Tomatoes

Corn earworm counts have sharply increased in blacklight traps in all counties this week. No fruit damage has been recorded yet, but as the sweet corn acreage declines throughout the state tomatoes may be impacted by this pest, particularly in the southern counties. Check local blacklight trap counts, and continue to monitor fruit for signs of **CEW** feeding.

Cabbage loopers (CL) are feeding in the canopy of tomatoes in fields in south and central counties. The damage is usually easy to see, as the larvae produce irregular holes in the leaves. **CL** rarely feed on the fruit and usually do not cause economic damage to the plant. Check for the presence of larvae and damage and treat only if significant defoliation is occurring.

Stinkbug adults continue to be active, and fruit damage has been increasing. Fruit damage is not easily seen when scouting green fruit on the plant. A better indication of damage levels is to check the harvested fruit in the bins and baskets, especially on red fruit. Look for white to yellow cloudy spots, often in star patterns, just underneath the surface of the tomato skin. Usually a pinprick is associated with the discoloration.

Sweet Corn

Blacklight trap catches of **ECB** have remained steady at moderate levels throughout most of the southern counties. In the central and northern counties, catches have increased since last week. This pest is a threat to sweet corn in all areas at this time, however, sprays targeted at **FAW** and **CEW** are likely to also provide control of **ECB**. Treat when 12% or more of plants are infested with **ECB** and/or **FAW**.

The highest average nightly **ECB** blacklight trap catches are as follows:

Woodstown	33	Georgetown	6
Allentown	12	Beckett	5
Ellisdale	9	Jamesburg	5
Centerton	6	Burlington	4
Cranbury	6	Manville	4
Eldora	6	Morristown	3

Blacklight catches of **CEW** have increased in all areas of the state within the past week. Consistent catches are now occurring in the northern counties, and adult populations have reached moderate to high levels in many parts of the south and central regions. Silking sweet corn is at considerable risk for damage at this time. See General Silking Schedules that follow.

The highest average nightly **CEW** blacklight trap catches are as follows

Shiloh	31	Medford	4
Indian Mills	6	Denville	3
East Vineland	5	Milltown	3
Hancocks Bridge	5	Sheppards Mill	3
Pemberton	5	Woodstown	3
Cranbury	4	Sewell	2

General Sweet Corn Spray Schedule

Silking stage:	North	3 to 4 day *
	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 BLACKLIGHT TRAP CATCHES PAGE 5

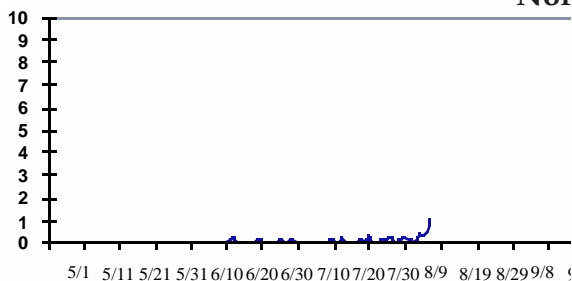
Blacklight Trap Catches

Corn Earworm

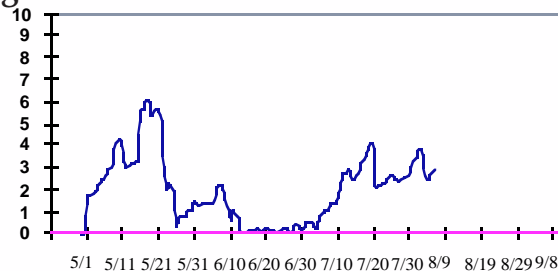
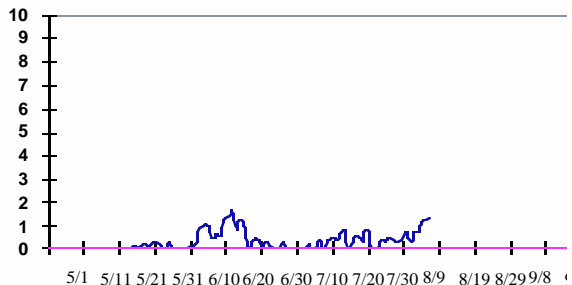
Northern Region

European Corn Borer

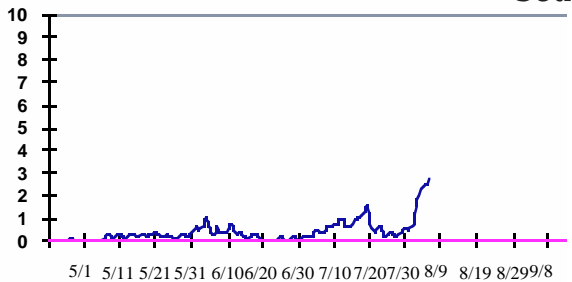
Average number per night



Central Region



Southern Region



Date

Date

Weekly Weather Summary 8/17/98

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged above normal. Extremes were 91 degrees at Pemberton on the 11th, and 57 degrees at Freehold and Charlotteburg on the 13th. Weekly rainfall averaged 1.29 inches north, 0.49 inches central, and 0.81 inches south. The heaviest 24 hour total was 1.65 inches at Charlotteburg on the 10th to the 11th. Estimated soil moisture, in percent of field capacity, this past week averaged 76 percent north, 53 percent central and 51 percent south. Four inch soil temperatures averaged 74 degrees north, 74 degrees central and 75 degrees south.

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	1.35	27.64	5.42	87	64	74.	4	2171	243	69
CANOE BROOK	.65	27.34	4.00	90	62	77.	6	2484	550	64
CHARLOTTEBURG	2.28	30.53	6.97	87	57	72.	4	1918	395	87
LONG VALLEY	.88	26.62	2.34	82	64	73.	4	1949	233	63
FREEHOLD	.40	27.71	5.78	90	57	75.	2	2306	190	56
LONG BRANCH	1.09	31.82	9.76	87	63	74.	1	2186	149	67
NEW BRUNSWICK	.28	26.67	4.62	89	61	75.	2	2379	179	63
PEMBERTON	.54	22.09	-.23	91	61	76.	3	2537	378	36
TOMS RIVER	.18	33.88	11.25	88	63	75.	3	2425	401	30
TRENTON	.46	25.07	4.07	90	61	75.	1	2293	-9	42
CAPE MAY COURT HOUSE	.86	20.93	1.40	86	66	75.	0	2425	247	39
DOWNSTOWN	1.02	21.73	1.08	90	60	75.	2	2522	213	53
HAMMONTON	.52	19.37	-2.28	90	59	75.	1	2485	197	29
POMONA	.61	23.84	4.01	88	61	75.	3	2460	326	38
SEABROOK	1.27	24.46	4.63	89	65	76.	2	2667	347	56
ATLANTIC CITY MARINA	.61	25.02	6.02	89	71	77.	4	2451	396	32
WOODSTOWN	.96	21.45	-0.09	90	63	77	NA	2692	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLO	Last Week			232 (Ending 8/10/98) This Week				247 (Ending 8/17/98)		

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