

# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 25, 1997



## INSIDE

<b>Sweet Corn Field Problems ....</b>	<b>1</b>
<b>Veg Crops Diseases .....</b>	<b>2</b>
<b>Pest Notes .....</b>	<b>3</b>
<b>June is Peak Tick Season .....</b>	<b>3</b>
<b>IPM Update .....</b>	<b>4</b>
<b>Weekly Weather Summary .....</b>	<b>5</b>

## Sweet Corn Field Problems

*Raymond J. Samulis, Burlington County Agriculture Agent*

**1** 1997 has been a challenging season for growing sweet corn. The problem with plant stands began even before many seeds emerged. In many instances, growers were quick to point a finger at "poor seed". The reality, however, is that with modern seed technology, the vast majority are high quality with high germination and good vigor. This season, however, due to the extremely low temperatures, many varieties were challenged. Growers must remember that soil temperatures in the springtime always lag behind air temperatures and this season it took many weeks to catch up. When the seeds remain in the soil a long time before emergence, they become increasingly susceptible to many seed rots, seed corn maggot and wireworms. Seed treatment can be applied to control some of these problems, but due to the spotty nature of the pests, they often go unnoticed.

For the past ten or so years I have been observing various fields to evaluate the cold tolerance of sweet corn varieties. Cold tolerance was extremely important this season in establishing adequate plant stands. This year's variety trials contained thirty eight different varieties of sweet corn all planted at the same time. The cold tolerance difference was such that some varieties had 18" of growth while other varieties had 2" or 3". Another interesting phenomenon this season was the difference in germination of different blocks of the same variety. This indicates the important role of short term isolated weather events such as frost, etc. You will be hearing more about the best cold trials at this winter's meetings.

In addition to disease and cold tolerance problems, many fields are suffering from the effects of sand blasting and nitrogen leaching. Excessive rains have resulted in dark and light green patches in many fields. Some growers are quick to blame nematode injury for these problem areas. While nematodes are a factor in some areas, most of these differences in color are fertilizer related and are not due to nematodes.

Every year I also diagnose various sweet corn problems that are a result of pH in the 4's. This can be easily corrected with pre-season soil samples and lime application.

Due to the extremely wet spring, we had many fields which were "mudded in". This has resulted in crusted soils that have become cement-like and have seriously hindered emergence in farm plantings.

SEE SWEET CORN ON PAGE 2

# Vegetable Crops Diseases

Stephen A Johnston, Ph.D., Plant Pathology

✓ **Carrots:** It will soon be the time to start fungicide applications for the control of **leaf blights**. Apply Bravo or Rovral (controls *Alternaria* only) on a 10-day schedule beginning in early July and continue until frost. **Leaf blights** caused considerable defoliation in a number of fields in 1996. Care should be taken in 1997 to protect the foliage with properly timed fungicide applications to avoid the situation that occurred in 1996.

✓ **Corn (Sweet): Smut** is present on the leaves of some varieties at this time. Infected leaves have numerous large, raised mounds present. No control measures are available at this time. In future seedings use **smut** resistant varieties whenever possible.

✓ **Cole crops:** For control of **clubroot**, prior to seeding be sure to raise the soil pH to 7.0 or above; improve the drainage in the field; produce the crop on raised beds; and use Terraclor according to label directions.

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

✓ **Eggplant: Phytophthora blight** is present in some fields at this time. Infected plants are completely wilted, and there is a black, girdling lesion at the base of the stem near the soil line. Improve the drainage in the field to allow excess soil moisture to leave the field during a rain, and maintain applications of Ridomil Gold via injection through drip irrigation or as a banded application around the plant on bare ground. Make applications 30 and 60 days after transplanting. **Verticillium wilt** is present in some fields. Infected plants are partially wilted (one or more branches, one or more leaves). No control measures are available at this time. Crop rotation and preplant soil fumigation need to be utilized prior to planting the crop in the future.

✓ **Muskmelon:** Maintain applications of Bravo or mancozeb every 7-10 days for prevention of **Alternaria leaf blight**.

✓ **Pepper: Phytophthora blight** continues to spread in several fields at this time. Infected plants are girdled at or below the soil line, and the recent high temperatures have created a high moisture demand on the plants. Infected plants can not keep up with the moisture demand and wilt. Maintain applications of Ridomil Gold via injection through drip irrigation or as a banded application on bare ground fields. Applications are to be made 30 and 60 days after transplanting.

✓ **Spinach: Anthracnose** is present at this time. Infected leaves have numerous, brown lesions with black specks in the center. Kocide LF applications will assist in control, however, the recent hot weather can result in copper phytotoxicity. Make applications in the cooler part of the day.

✓ **Squash (Summer): Phytophthora blight** is present in several fields at this time. Infected plants completely wilt, and a dark lesion is present at the base of the stem and base of the petioles. Maintain applications of Ridomil/Bravo every 14 days for control.

✓ **Tomato: Timber rot** is present in some fields at this time. Infected plants are completely wilted, and there is a tan, girdling lesion present at the base of the plant. Inside the lesion within the stem there are numerous, black sclerotia of the fungus present. The disease will not spread in the field at this time. Control measures need to be applied shortly after transplanting to prevent infection in future plantings. **Phytophthora blight** is present in some fields. Infected plants are completely wilted, and lower stems are discolored. The disease is more prevalent in low lying areas of the field. Improve the drainage in the field to allow excess soil moisture to leave the field during rainfalls. As reported in last week's issue of the [Plant & Pest Advisory](#), a new fungicide, Quadris, is now available for use on tomatoes. This fungicide has received New Jersey DEP and the Federal EPA approval. The name Quadris means four, which represents control of the four basic groups of fungi that attack tomatoes, and it is a systemic fungicide. It is formulated as a 2 lb/gal flowable, and is recommended at the rate of 5 oz/A, which enables one gallon of product to treat 25 acres of tomatoes. □

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## SWEET CORN FROM PAGE 1

Working soils that are extremely wet can result in serious compaction problems. Remember that the average soil profile contains 50% pore space which is needed for good root growth. Working the soils when wet can eliminate most of the pore space.

The challenges in growing sweet corn are varied and many during 1997. Many times growers would like to identify one single problem that they can eliminate to improve the sweet corn stands. In biological systems all of the factors I have mentioned interact with each other and have a cumulative effect. Most problem fields I have observed contain three or more of the problems acting together. There is simply no quick fix for the complexity of these problems. □

## Pest Notes

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

✓ **General:** The **aphid** populations have been increasing in various crops. This pest is one to monitor closely at this time, as periods of cold weather followed by periods of hot weather tend to allow **aphid** populations to rapidly develop. With temperatures hitting the mid-90's this week, it's possible that growers could miss this development if they are not closely monitoring the population.

Lepinox WDG is a bioinsecticide that was approved by the EPA for use on many fresh and processed vegetables, including asparagus, beans, beets, corn, cucumbers, leeks, melons, okra, parsley, pumpkins, and tomatoes. It effectively controls various **worm** pests, including European **corn borers**, **fall armyworms**, and **corn earworm**. Use 1.0-2.0 lbs of Lepinox WDG per acre, as needed.

✓ **Eggplant:** Monitor the undersides of the leaves for **spider mite** buildups. **Mites** will rapidly develop in hot temperatures, and low to moderate **mite** populations have already been reported in eggplant and cucurbits. Many ornamental crops (shrubs, trees) in the area have heavy **mite** populations already, indicating that weather factors are favorable to the **mites**. Several miticides are labeled in eggplant, including Dibrom 8E, Metasystox-R, Vendex 50WP and Vydate L. Consult the label for all rates and restrictions.

✓ **Onion:** Wes Kline reports that the degree days have reached over 1500, which is the amount needed for the next generation adult onion **maggot flies** to develop. Traps are catching the adults at this time, indicating that adults are active. Adults will be depositing eggs on onions and related crops, and unprotected onions may be susceptible. Only diazinon is labeled for green onions (Dyfonate and Lorsban are labeled in dry bulb onions only) as a soil application, although diazinon, malathion and Ambush are labeled in onions for **fly** (adult) control.

✓ **Potato:** Potato **leafhoppers** have been found in increasing numbers in several crops, including potatoes. Even fields that were treated with Admire have been found with low numbers of **leafhoppers** (reasons not known at this time). This pest, if allowed to build up, can rapidly reduce plant yields. Closely monitor your fields for potato **leafhopper** (consult the [1997 Commercial Vegetable Production Recommendations for New Jersey](#) for more information concerning thresholds, effective control measures, etc.). ☐

## June is Peak Tick Season

Deborah Smith-Fiola, Ocean County Agricultural Agent

**L**ast summer's mild weather allowed for optimal survival and host finding for the northern deer tick (now known as the black legged tick), the vector of Lyme disease.

Because of the 2-year life cycle of this tick, last year's larvae have overwintered to molt into the nymph stage, which has peak activity in late May and June. The majority of all Lyme disease cases are the result of the bite of a nymph, usually this time of year.

The deer tick nymph is the size of a poppy seed. It has a black head and a black dorsal shield behind its head. The abdomen is creamy white and translucent before it feeds - after a blood meal, the abdomen darkens and swells. It takes 3 to 4 days for a nymph to finish feeding on an animal and completely engorge with blood — whereupon it swells to the size of a sesame seed, and drops off the host. This is how deer tick populations spread: they hitch a ride on an animal host such as a bird, feed for a few days, then drop off wherever that bird may have flown.

Research shows that 85% or more deer tick nymphs are found in the woods, typically in 4 - 6 inch high vegetation. This location offers the likelihood of finding a small animal to feed upon. Ticks don't fly, jump, or fall from trees. They find a host by crawling up low vegetation and *waiting* for an animal to walk by — then they grasp onto the skin/clothing, and crawl up. Knowing this, beware of walking in tall grass or the shrubby undergrowth in the woods. Widen trails to 6 feet or more to avoid brushing against vegetation. Some homesites will clear cut the shrubby understory layer of the adjacent forest to somewhat reduce the tick potential by mowing or bushhogging - but this has to be repeated annually (or else regrowth occurs along with increased wildlife and increased ticks!)

Not every tick carries Lyme disease. In order to transmit the disease as they feed, nymphs need to pick up the disease when they were a larva from an infected animal. The infection rate thus varies annually, typically from 10% to 25-30%. (Note that adult ticks have a higher infection rate [up to 45% in Hunterdon County last year]). Even if infected, research shows that the deer tick still must feed at least 24 hours to transmit the disease bacteria from its body to yours. Translated: this means that approximately one out of four ticks may be infected and able to transmit Lyme disease - if it feeds more than a day. So the trick is to *remove ticks as soon as possible!*

Remove ticks only with tweezers. Bent, 'needle-nose' tweezers are preferred. Other methods, including

SEE TICKS ON PAGE 5

# Vegetable IPM Update

Kristian E. Holmstrom, Vegetable IPM Program Associate and Sally Walker, Vegetable IPM Program Associate

## ◆ Cole Crops

**Imported Cabbageworm (ICW)** adults are active now in cole crops across the state. With warmer weather, plantings become reinfested quickly after treatment. Large **ICW** in particular may be found near the heads of broccoli and cauliflower plants. **Cabbage looper** larvae have been found in Hunterdon County broccoli fields this week. Populations of **diamondback moth** are heavy in some locales and largely absent in others. Fields should be monitored weekly to determine rates of infestation and which species of larvae are present.

## ◆ Pepper

Aphid levels in an unsprayed field in Salem County remain low due to high activity of predators and parasites. **Potato leafhopper** adults are easily found around the state, but no damage appears to be occurring at this time. **European corn borer (ECB)** egg laying was detected, indicating that small fruit on early plantings may need to be protected at this time.

## ◆ Potato

First generation **ECB** is over in the potato growing areas. Trap counts never reached high levels in the potato area, especially compared to last year. Treatment for **ECB** is not recommended at this time.

## ◆ Sweet Corn

Sporadic, light catches of adult **corn earworm (CEW)** continue as far north as Middlesex county. The highest nightly **CEW** blacklight trap catches are as follows:

Burlington	1	Egg Harbor	1	Shiloh	1
Cedarville	1	Folsom	1	Shirley	1
Chapel Hgts1		Hammonton	1	Tansboro	1

In the southern counties, the first generation **ECB** flight is on the decline. In the north and central areas of the state the **ECB** flight has peaked. The highest average nightly **ECB** blacklight trap catches are as follows:

Shiloh	9	Cohansey	3	Mullica Hill	2
Shirley	5	Ellisdale	3	Repaupo	2
Allentown	4	Crosswicks	2	Tabernacle	2
Centerton	4	Laurel Hills	2	Woodstown	2

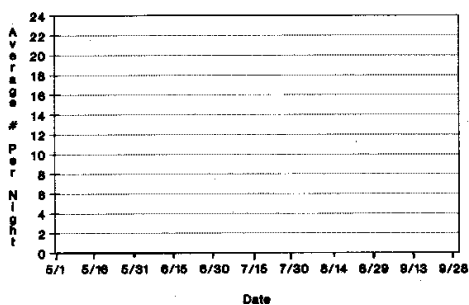
## ◆ General Sweet Corn Spray Schedule

Moderate to heavy infestations of **ECB** are occurring in the whorl stage planting at this time throughout central and northern New Jersey. It is currently possible to find plantings in Somerset and Hunterdon counties with **ECB** infestation over 50%. High infestations are at risk for ear damage unless treated prior to silking. In some cases more than one insecticide application may be required to achieve control. Fields throughout the state should be monitored to determine infestation levels and efficacy of insecticide treatments.

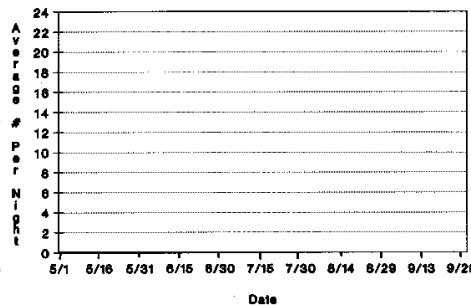
Silking stage: South 5 - 6 days\*

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

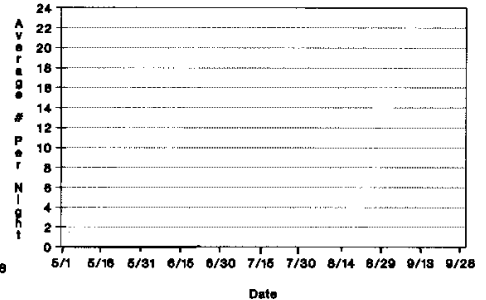
Northern NJ- CORN EARWORM (CEW)  
Blacklight Trap Catches



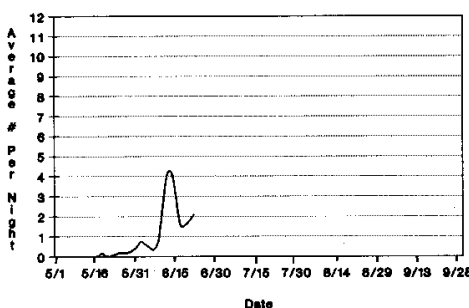
Central NJ- CORN EARWORM (CEW)  
Blacklight Trap Catches



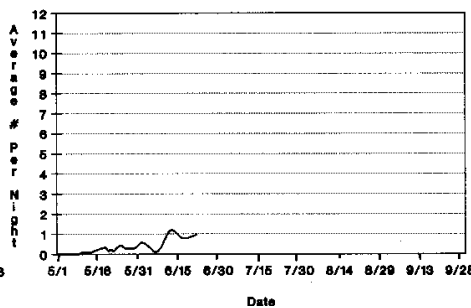
Southern NJ- CORN EARWORM (CEW)  
Blacklight Trap Catches



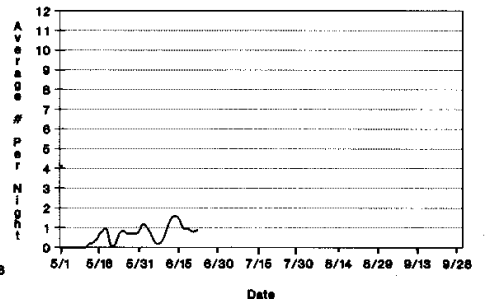
Northern NJ- EUROPEAN CORN BORER (ECB)  
Blacklight Trap Catches



Central NJ -EUROPEAN CORN BORER (ECB)  
Blacklight Trap Catches



Southern NJ -EUROPEAN CORN BORER (ECB)  
Blacklight Trap Catches



# Weekly Weather Summary

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged above normal. Extremes were 97 degrees at Toms River and canoe brook on the 22nd and 42 degrees at Hammonton on the 17th. Weekly rainfall averaged 0.88 inches North, 0.50 inches Central, and 0.22 inches South. The heaviest 24 hour total was 1.10 inches at Long Valley on the 18th to 19th. Estimated soil moisture, in percent of field capacity, this past week averaged 69 percent North, 64 percent Central and 38 percent South. Four inch soil temperatures averaged 67 degrees North, 69 degrees Central and 70 degrees South.

## Weather Summary for the Week Ending 8 Am Monday 6/23/97

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.76	11.34	-3.01	90	48	70.	1	590	-142	64
CANOE BROOK	.67	12.23	-3.26	97	50	73.	4	748	50	66
CHARLOTTEBURG	.87	14.75	-.85	94	47	70.	4	536	-1	65
FLEMINGTON	.75	13.25	-1.52	92	45	70.	0	588	-138	69
LONG VALLEY	1.10	14.14	-1.69	90	46	69.	2	526	-68	72
NEWTON	1.15	12.11	-1.92	88	45	69.	1	435	-174	74
FREEHOLD	.02	13.65	-.89	96	49	72.	1	697	-116	69
LONG BRANCH	.00	14.12	-.53	94	50	70.	0	682	-65	42
NEW BRUNSWICK	.77	16.05	1.84	93	50	71.	-1	716	-145	78
PEMBERTON	.59	13.76	-.27	96	49	75.	4	874	28	51
TOMS RIVER	.43	13.05	-1.40	97	46	73.	3	703	-38	50
TRENTON	1.18	15.95	2.74	93	50	72.	0	721	-190	85
CAPE MAY COURT HOUSE	.04	12.49	-.33	92	46	72.	1	741	-78	25
DOWNSTOWN	.05	12.43	-.65	93	44	73.	1	759	-173	28
GLASSBORO	.23	15.14	1.01	96	54	75.	3	837	-74	39
HAMMONTON	.06	13.28	-.47	96	42	73.	1	742	-161	21
POMONA	.50	14.26	1.73	94	47	73.	2	750	-75	57
SEABROOK	.00	13.34	.86	94	49	73.	1	828	-110	29
ATLANTIC CITY MARINA	.64	10.29	-1.66	83	61	72.	2	729	-33	52
WOODSTOWN	.10	13.46	NA	96	48	75.	NA	857	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW										
Last Week 207 (Ending 06/16/97)										
This Week 236 (Ending 06/23/97)										

### TICKS FROM PAGE 3

using your fingers, petroleum jelly, a hot match, etc. may traumatize a tick - and a traumatized tick is likely to regurgitate its gut contents, which may include the Lyme disease bacteria. Grasp the tick under the head, and S-L-O-W-L-Y and firmly pull it out. Disinfect the wound with antiseptic. Save the live tick for identification (put it in a sealed container with a moist cotton ball in a cool spot). The Rutgers Plant Diagnostic Lab (908-932-9140), many county extension offices, the State Health Dept. and NJ Labs (a private company in New Brunswick) all identify ticks (the latter two for a charge which includes determining if infected).

Lyme disease symptoms include: a migratory rash (2" or more in diameter; appearing on 60% of victims,

usually noticed 2-3 days after a bite); fatigue, memory loss, joint pain and inflammation, headache, difficulty concentrating, and flu-like symptoms. Symptoms may progress to mimic other, more severe diseases. See a doctor! Deer ticks and other ticks are now known to transmit other, less common diseases. Ehrlichiosis (HGE), has been identified since 1984, and was diagnosed in 8 people in New Jersey last year, with 2 deaths. Suspect ehrlichiosis if you have Lyme-like symptoms (fever, fatigue, chills, headache, muscle pain) early in the day, but by evening symptoms are severe, to the point of entering the hospital.

For more information, see your doctor and/or call your county agent for the free RCE bulletin, "Prevent Tick Bites, Prevent Lyme Disease." □

New Brunswick, N.J. 08903-0231  
Cook College  
P.O. Box 231

Rutgers - The State University of New Jersey  
**U.S. DEPARTMENT OF AGRICULTURE**  
Rutgers Cooperative Extension - NJAES

## **PLANT & PEST ADVISORY**

### VEGETABLE CROPS EDITION CONTRIBUTORS

#### Rutgers Cooperative Extension Specialists

Joseph A. Fiola, Ph.D., Small Fruit & Viticulture  
Stephen A. Garrison, Ph.D. Vegetable Crops  
Gerald M. Ghidui, Ph.D. Vegetable Entomology  
Joseph R. Heckman, Ph.D., Soil Fertility  
Stephen A. Johnston, Ph.D. Plant Pathology  
Bradley A. Majek, Ph.D. Weed Science  
Donald J. Probst, Ph.D. Vegetable Crops IPM  
Craig A. Storlie, Ph.D. Agricultural Engineering

#### Rutgers Cooperative Extension County Agricultural Agents

Atlantic, Richard W. VanVranken (609-625-0056)  
Burlington, Raymond J. Samulis (609-265-5050)  
Cape May, Larry E. Newbold (609-465-5115)  
Cumberland, Wesley Kline, Ph.D. (609-451-2800)  
Gloucester, Michelle Infante (609-863-0110)  
Hunterdon, Winfred P. Cowgill, Jr. (908-788-1338)  
Mercer, Daniel Kluchinski (609-989-6830)  
Middlesex, William T. Hlubik (908-745-3443)  
Monmouth, Richard G. Obal (908-431-7260)  
Morris, Peter J. Nitzsche (201-285-8300)  
Salem, Peter R. Probasco (609-769-0090)  
Somerset, Clare S. Liptak (908-526-6293)  
Warren, William H. Tietjen (908-475-6505)

#### Newsletter Production

Jack Rabin, Assistant Director, NJAES  
Cindy Rovins, Editor and Designer

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