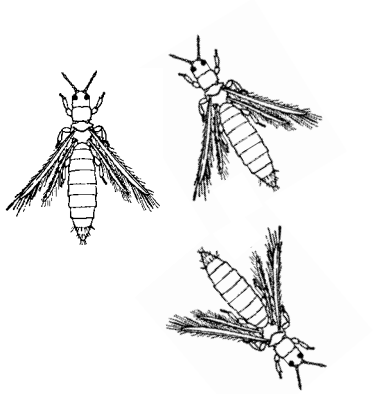
RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION $1.50 JUNE 23, 1999



INSIDE

Pest Notes

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

Michelle Infante, Gloucester County Agricultural Agent, contributed recommendations for Cucumber and Pickle, and Eggplant

✔ **General:** Temperatures are expected to increase during this week, and the potential for **spider mite** problems will increase also. Monitor fields closely for **spider mite** buildup or increasing **mite** damage. Fewer management problems will be encountered if this pest is detected early.

✔ **Cabbage:** Researchers in several locations report that planting collard greens around the cabbage, broccoli or other cole crop fields will reduce the infestation of **diamondback moth**, and will keep the infestation low as long as the collard greens remain green and continue to grow. **Diamondback moths** prefer collard greens over cabbage and related crops, and will likely not infest the adjacent crops if there are fresh collard greens nearby. Growers could reduce their sprays from 70-100% using collard greens as a trap crop.

✔ **Cucumber and Pickle:** Thrips have been seen on the undersides of leaves. Thrips are very small and slender. In order to see them a magnifying glass may be needed. They are generally yellow in color or also a light brown. They cause a small area of necrosis on the leaf that is first yellow in color. They can also attack flowers and cause fruit distortions when in high numbers. Consult your local agricultural agent for controls. Take caution not to apply insecticides when bees are working in the fields.

✔ **Eggplant:** Thrips are now showing up on leaves and in flowers. Many eggplants were treated with Admire before going to the field. This will protect against thrips for about a month. However, in many fields the protection has run out. If left untreated, thrips can cause fruit distortion and a zippering affect on fruit by feeding on flowers and immature fruit. Thrips can be controlled by applying Spintor, Guthion, or Provado. If Admire was used at planting, then do not use Provado to avoid insect resistance.

✔ **Onions:** The number of **onion maggots** has declined somewhat, indicating the second generation will soon end. The next generation flies should begin about 1 week after this generation ends. No new labels have been granted by the Federal EPA for onions, so Trigard-treated seed or applications of diazinon are all that are labeled for green onions. On-going research trials (with W. Kline, S. Walker) at Russo's farm indicate that the most effective control method thus far has been Trigard-treated seed.

SEE PEST NOTES ON PAGE 2

PEST NOTES FROM PAGE 1

✔ **Potato**: **European corn borer** numbers have declined, indicating that the first generation **corn borer** flight is over. **Leafhopper** adults and nymphs are appearing in potato fields, and control is recommended if there is more than 1 nymph per 10 leaves. Coverage is important for effective management of potato **leafhoppers**. Consult the *1999 Commercial Vegetable Production Recommendations* for suggested management tactics.

✔ **Tomato:** The populations of various species of **stinkbugs** have been increasing in tomato fields throughout the area. Also, the number of **stinkbugs** caught in blacklight traps has increased over the past week or two. Monitor for this pest in tomato fields to determine if the number of bugs is increasing or if damage is increasing. Also, monitor adjacent crops of soybean, forage, etc. where **stinkbug** populations may increase and pose a threat to tomato crops. Labeled insecticides include Baythroid, Monitor, Thiodan and Warrior. Danitol EC is labeled for certain pest control in tomatoes, but **stinkbugs** are not listed on the tomato label for insects controlled. However, **stinkbugs** are listed on the cotton label, so use of Danitol EC for other pests will likely result in at least some **stinkbug** control.

Low numbers of **corn earworm moths** are caught in local blacklight traps, and growers indicate that at least a few green fruit have **corn earworm** damage at this time. This is an important pest that can cause significant damage if not detected in time. Monitor fields for **worms** or for damage, and treat using Asana, Baythroid, cryolite, Danitol, Guthion, Lannate, Monitor, SpinTor, or Warrior. Days to harvest after application ranges from 0 to 14 days for these materials, so thoroughly read the label before use. ❑

Vegetable Crops Diseases

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

✔ **Asparagus:** By now all harvesting should have been completed in New Jersey. Only an 8-week harvest period is recommended in order not to stress production fields. Cutting pressure stress on production fields can lead to increased levels of **Fusarium root & crown rot**, which reduces the longevity of the field. During the summer and fall, fields should be irrigated as needed to prevent moisture stress, and insects and diseases (**Purple spot and rust**) must be controlled as well.

✔ **Basil: Fusarium wilt** is present in some fields at this time. Infected plants collapse, and stems turn black. No control measures are available at this time. The disease initiates from infested seed; therefore, request disease-free seed for future plantings.

✔ **Cole crops: Yellows (Fusarium wilt)** is present on savoy cabbage at this time. Infected plants are stunted, leaves are chlorotic and there is a brown discoloration of the vascular tissue. No control measures are available at this time. In future plantings use yellows resistant varieties.

✔ **Cucumber: Bacterial wilt** is present in some fields at this time. Infected plants wilt completely, and are scattered throughout the field. No control measures are available at this time. Disease control involves controlling **cucumber beetles** early in the season to prevent transmission of the bacteria from the beetles to cucumber plants. All fields with vines running and beyond need to be on a 7-10 day schedule with Bravo + Benlate or Topsin M for the control of **foliar diseases.**

✔ **Eggplant: Phytophthora blight** continues to develop in several fields. Maintain applications of mefenoxam (Ridomil Gold or Ultra Flourish) every 21 days via injection through the drip irrigation system for control.

✔ **Muskmelon:** Maintain applications of Bravo or mancozeb as a foliar spray to control **Alternaria leaf spot,** and repeat every 7 days.

✔ **Parsley:** Avoid working in fields while the foliage is wet, and apply a copper fungicide every 7-10 days for control of **bacterial leaf spot.**

✔ **Pepper:** Maintain applications of mefenoxam (Ridomil Gold or Ultra Flourish) via injection into drip irrigation systems every 21 days for control of **Phytophthora blight.**

✔ **Potato (white):** Weather conditions continue to be favorable for the development of **late blight**. Maintain applications of mancozeb every 5-7 days for protection against the disease.

✔ **Squash (summer):** Zucchini plants in several fields are losing their fruit prematurely. Fruit are turning yellow and dropping from the plant. In the majority of cases this is occurring prior to the opening of the flowers. This is the result of the heat and moisture stress that developed prior to the recent rainy period, and is not a pollination problem. Maintain applications of Ridomil Gold/Bravo every 14 days for the control of **Phytophthora blight.**

✔ **Tomato: Tomato Mosaic Virus** is present in some fields at this time. Infected plants have leaves with a mosaic (areas of dark and light green color) pattern present. The virus is transmitted by mechanical means and not by insects; therefore, to prevent spread, workers present in infested fields should wash their hands with soap and water prior to working in other fields. All fields with fruit present should be on a 7-10 day fungicide schedule in which Bravo is alternated with Quadris for control of **foliar and fruit diseases.**

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

IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

Sweet Corn

The **European corn borer (ECB)** adult blacklight trap catches have dropped this week, and feeding in corn has also declined. Continue to monitor whorl through tassel stage plantings for signs of corn borer infestation. The highest nightly **ECB** blacklight trap catches are:

New Egypt	4	Indian Mills	2	Centerton	1
Hackettstown	3	Sergeantsville	2	Cranbury	1
Little York	3	Sykesville	2	Manville	1
Drakestown	2	Belvidere	1	Woodstown	1

Corn earworm (CEW) larvae are found in some pretassel plantings. Larvae vary in color and may be green, yellow, pinkish-orange, or light brown. Include **CEW** infested plants in the overall sample of 50 plants and consider treatment if 12% of the plants are infested with any larvae. The highest nightly CEW blacklight trap catches are:

Indian Mills	2	Denville	1	Matawan	1
New Egypt	2	Fishing Creek	1	Pemberton	1
Beckett	1	Hackettstown	1	Sergeantsville	1
Dayton	1	Hammonton	1	Sewell	1

Fall armyworm (FAW) adults are being caught in pheromone traps in the south, and the Delaware IPM Program is reporting low levels of **FAW** feeding this week. Begin checking seedling and early whorl stage corn for signs of **FAW** infestation. New **FAW** feeding looks similar to **ECB** feeding. To determine which pest is infesting the planting, pull the whorl and carefully unroll the leaves to look at the larvae. **FAW** larvae are light to dark brown with a light stripe along the side of the body. The characteristic marking is a brown head capsule with an inverted 'Y'-shaped suture. The body of **ECB** larvae can be light brown to cream colored but the head capsule will be a solid reddish-brown or black color.

General Sweet Corn Spray Schedule

Silking corn: North 6 days
Central 4 – 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

Last week **CEW** (also called **tomato fruitworm**) adult blacklight trap catches were high in some areas. This week there are reports of **CEW** damage on tomatoes in the southern counties. **CEW** generally begin feeding near the stem end of the tomato, leaving a circular entrance hole on the fruit. The larvae vary in color from green-yellow to reddish-brown. When sampling for other pests (10 plants in 10 locations) check 2 green fruit per plant (200 fruit total) that are 1 inch in diameter or greater for the presence of larvae or damage. Consider treatment if 5 fruit have **CEW** damage. Tomato fruit will also need periodic treatments for **stinkbugs**.

Peppers

The first generation **ECB** flight is over in the southern portion of the state. As adult counts in local blacklight traps increase to one to two per night, pepper fruit that is at least ½ inch in size should be protected on a 7-10 day spray schedule.

Snap Beans

The critical time to treat for **ECB** is at the bloom and pin stages. The first application should be applied during the bud-early bloom stage and the second application during the late bloom-early pin stage. As moth counts increase to 2 per night (or 11-25 moths in 5 days), a 7-day spray schedule is recommended from pin stage until harvest for processing beans. Fresh market beans should be treated on a 7-day schedule from the pin stage if blacklight trap catches are above 5 per night. See the *1999 Commercial Vegetable Production Recommendations* for more details.

Cole Crops

Continue to monitor fields weekly for the presence of **imported cabbage worm (ICW)**, **cabbage looper (CL)**, and **diamondback moth larvae (DBM)**. Consider treating fields when 12% or more plants are infested with any larvae prior to heading, or when 5% or more plants are infested and heads are present. Be sure to check the undersides of leaves and beneath the heads, as this is where larvae are commonly found. Prompt destruction of harvested plantings will aid in controlling **DBM** in younger plantings that may be nearby.

*Please note that **CEW** and **ECB** maps will resume publication on 6/28/99. ❑

Postemergence Herbicide Injury and the Weather

Bradley A. Majek, Ph.D., Weed Science

Warm, but not hot temperatures, high humidity and soil moisture, and cloudy weather have resulted in rapid growth and less cuticular wax development on leaf surfaces of many crops and weeds. Growers often call crops growing under these conditions "*soft*".

Crops and weeds are more sensitive to postemergence herbicides and spray additives than they usually are! Weeds are easy to kill, but crop injury is more likely to occur, or may be more severe than usual. Observe the following precautions to minimize the risk of herbicide injury to vegetable crops.

- Use the lowest recommended rate of postemergence herbicides when a rate range is suggested.
- Omit spray additives if the herbicide label indicates they are optional.
- Use nonionic surfactants instead of oil concentrates when the herbicide label indicates that either can be used.
- Do not add liquid fertilizers to "heat up" postemergence herbicides.

Delay postemergence herbicide application until three to five days of bright sunny dry weather has "toughened" the crop unless the weeds must be sprayed before they grow too large to be controlled. Consider alternate weed control methods if temporary cosmetic damage to the crop foliage is unacceptable.

Listed below are commonly used postemergence herbicide treatments for some vegetables and comments on avoiding injury when crops are "*soft*".

✔ **Asparagus:** Apply Banvel (dicamba) in bearing asparagus to control **annual broadleaf weeds**, including **morningglory spp.**, **ragweed**, **pigweed**, **common lambsquarter**, and others; and **perennials**, including **Canada thistle**, **bindweed spp**. and others. Apply one half to one pint of Banvel 4SC per acre after weeds have emerged and are actively growing, but before flowers or buds are formed.

Observe a one-day (24-hour) preharvest interval during the cutting season. Unlike 2,4-D, Banvel does *not* affect spear flavor for several days after application. Banvel may be tank-mixed with other postemergence or with residual herbicides at the end of the cutting season.

Use drop nozzles after the cutting season to avoid wetting the fern and to improve coverage of target weeds. Wetting the lower part of the emerged asparagus stalks will not cause injury to the crop.

Use Caution during application. Banvel is a growth regulator type herbicide. Do *not* apply Banvel with a sprayer that will be used to spray sensitive crops afterward. It may be difficult or impossible to clean the tank. Spray *or* vapor drift can injure sensitive vegetable or fruit crops in adjacent fields. Avoid use when such crops are growing near the site of application.

✔ **Bean (snap):** Newly emerged snap beans at the unifoliate to first trifoliate leaf stage of growth may be burned on the first bright sunny day without any herbicide treatment. Do *not* use oil concentrates or other spray additives on snap beans. Poast 1.5EC should be applied without oil concentrate or application delayed until the weather changes. Small seedling grasses will be effectively controlled without oil concentrate. Basagran applications for **broadleaf weed** and **yellow nutsedge** control should be delayed until the weather improves unless the weeds will grow too large to be controlled. Delay basagran application until the snap beans have two fully expanded trifoliate leaves. Position the nozzles between the rows and direct the spray to wet only the bottom half of the snap bean plant. Avoid wetting the growing shoot and at least one fully expanded trifoliate leaf to minimize or eliminate risk of crop injury and maturity delay.

✔ **Cabbage:** Use only the minimum recommended rate of Lentagran 45WP, 1.0 pound per acre (0.45 lb ai/a). Note that this rate is only half the labeled rate. Omit any spray additive to further reduce the speckling of leaves that get sprayed.

✔ **Corn (sweet):** Avoid using 2,4-D during these weather conditions. Switch to atrazine and oil concentrate or delay 2,4-D application until the weather improves and use drop nozzles to avoid spraying 2,4-D into the whorl.

✔ **Cucurbit Crops:** Poast 1.5EC should be applied without oil concentrate or application delayed until the weather changes. When cucurbits are "*soft*", oil concentrate can burn cucurbit leaves when applied alone, without an herbicide. Small seedling grasses will be effectively controlled without oil concentrate.

✔ **Tomato:** Delay the application of Sencor/Lexone until after 3 to five days of bright sunny dry weather has "toughened" the crop. Never use spray additives with Sencor/Lexone. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 87 degrees at Freehold on the 15th and 42 degrees at Charlotteburg on the 19th. Weekly rainfall averaged 0.62 inches north, 0.84 inches central, and 1.89 inches south. The heaviest 24 hour total was 2.06 inches at Pomona on the 20th to the 21th. Estimated soil moisture, in percent of field capacity, this past week averaged 67 percent north, 60 percent central and 56 percent south. Four inch soil temperatures averaged 65 degrees north, 67 degrees central and 68 degrees south.

Weather Summary for the Week Ending 8 am Monday 6/21/99

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.57	10.46	-3.63	82	48	65.	-4	743	49	64
CANOE BROOK	1.02	10.61	-4.62	86	54	67.	-2	901	241	73
CHARLOTTEBURG	.46	12.07	-3.25	81	42	62.	-4	586	81	63
FLEMINGTON	.48	8.61	-5.91	83	48	65.	-5	789	103	65
LONG VALLEY	.58	9.65	-5.92	78	46	63.	-4	625	65	70
NEWTON	.00	.00	.00	0	99	0.	0	0	0	0
FREEHOLD	.78	10.17	-4.14	87	53	68.	-2	910	139	70
LONG BRANCH	1.17	11.08	-3.36	79	52	65.	-5	791	84	77
NEW BRUNSWICK	.60	11.36	-2.63	84	49	67.	-4	851	34	73
PEMBERTON	1.70	12.51	-1.28	86	48	67.	-4	925	121	94
TOMS RIVER	.20	5.32	-8.91	82	49	65.	-4	762	61	36
TRENTON	.59	12.54	-.45	82	48	64.	-8	744	-123	70
BRIDGETON	.00	.00	.00	0	99	0.	0	0	0	0
CAPE MAY COURT HOUSE	1.56	8.49	-4.12	79	51	65.	-5	880	103	75
DOWNSTOWN	1.42	11.71	-1.16	84	52	67.	-5	899	11	81
GLASSBORO	.00	.00	.00	0	99	0.	0	0	0	0
HAMMONTON	1.48	10.42	-3.10	85	49	66.	-6	896	37	79
POMONA	2.47	11.77	-.57	81	49	65.	-5	856	73	100
SEABROOK	2.53	12.57	.32	84	54	68.	-4	1008	114	100
ATLANTIC CITY MARINA	1.91	9.37	-2.39	77	60	67.	-2	901	179	98
WOODSTOWN	0.82	12.47	-1.36	85	49	69.	NA	1011	NA	NA

WES KLINE — GDD BASE 40 PINEY HOLLOW

Last Week 226 (Ending 6/14/99)

This Week 189 (Ending 6/21/99)

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

Plant & Pest Advisory
18 College Farm Road
Cook College
New Brunswick, N.J. 08901-8551

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. Ghidiu, Ph.D. Vegetable Entomology
George Hamilton, Ph.D., Pest Management
Joseph R. Heckman, Ph.D., Soil Fertility
Stephen A. Johnston, Ph.D. Plant Pathology
Bradley A. Majek, Ph.D. Weed Science
Rutgers Cooperative Extension County Agricultural Agents
Atlantic, Richard W. VanVranken (609-625-0056)
Burlington, Raymond J. Samulis (609-265-5050)
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 (732-745-3443)
Monmouth, Bill Sciarappa, Ph.D. (732-431-7260)
Morris, Peter J. Nitzsche (973-285-8300)
Salem, Peter R. Probasco (609-769-0090)
Warren, William H. Tietjen (908-475-6505)
Vegetable IPM Program (732-932-9802)
Joseph Ingerson-Mahar, Vegetable IPM Coordinator
Kristian E. Holmstrom, IPM Program Associate
Sarah Walker, IPM Program Associate
Newsletter Production
Jack Rabin, Assistant Director, NJAES
Cindy Rovins, Editor and Designer
Mary Ann Hughes. Assistant Editor