

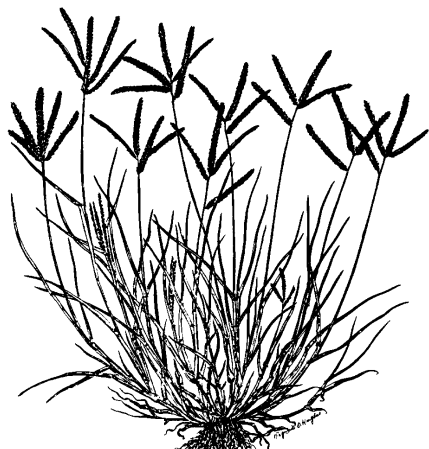
# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 16, 1999

## Deer Ticks Peak in June

*Deborah Smith-Fiola, Ocean County Agricultural Agent*



### INSIDE

**Deer Ticks Peak in June ..... 1**

**Veg Crops Diseases ..... 2**

**Pest Notes ..... 3**

**Deer Survey Results On-Line ..3**

**IPM Update ..... 4**

**Weekly Weather Summary ..... 6**

The relatively cool spring has extended the activity period 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 overwintering larvae have recently molted into the immature nymph stage. Nymphs are primarily active in late May and June. The majority of all Lyme disease cases (>70%) 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 is the only tick found in New Jersey with a black head and a black dorsal shield behind its head. Before feeding, the abdomen is creamy white and translucent. After a blood meal, however, 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 mustard 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, for example, may have flown.

Not every tick carries Lyme disease. Nymphs needed to pick up the disease from an infected animal when they were a larva, in order to transmit it as they currently feed. The infection rate thus varies annually, typically from 10% to perhaps 25%-30%. (Note that adult ticks have a higher infection rate). 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 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.

Deer ticks are now known to transmit other, less common diseases. HGE, or Ehrlichiosis, identified since 1984, 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. The diagnostic

SEE TICKS ON PAGE 5

# Vegetable Crops Diseases

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

✓ **Asparagus:** Only cut production fields for a total of 8 weeks to reduce cutting pressure stress. The stress from cutting longer than 8 weeks/season will result in an increased incidence of **Fusarium root & crown rot**, which will reduce the longevity of the field.

✓ **Bean (snap & lima):** To reduce incidence of **damping-off and root rots** completely plow down previous crop debris prior to seeding. Apply Ridomil Gold 4E (Pythium control only) in a 7-inch band over the row after seeding, or apply Ridomil Gold PC 11G (Pythium & Rhizoctonia control) as an in-furrow treatment at seeding.

✓ **Cole crops:** Be sure to grade off the ends of fields where beds are used for **clubroot** control to allow excess water to leave fields following a rainfall.

✓ **Cucumber:** Maintain applications of Bravo + Benlate or Topsin M as a foliar spray, and repeat every 7-10 days for **foliar disease** control. For fields with **angular leaf spot**, apply a copper fungicide + the full labeled rate of mancozeb, and repeat every 7 days.

✓ **Eggplant:** Maintain applications of mefenoxam (Ridomil Gold or Ultra Flourish) as an application to the base of the plant or via injection through drip irrigation every 21 days for control of **Phytophthora blight**. Grade off ends of fields to allow excess water to leave fields following a rainfall to prevent saturate soil conditions that favor the development of the disease.

✓ **Lettuce:** **Corky root** is present on Romaine lettuce at this time. Infected plants are stunted and the taproot is orange and brittle. High soil moisture and soil compaction are conditions that favor disease development.

✓ **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:** Both **Pythium root rot** and **Phytophthora blight** are present in fields at this time. **Pythium root rot** is characterized by wilted plants that have numerous brown roots, and the cortex slips from the roots easily leaving the steele present. The disease occurs primarily in fields produced on black polyethylene mulch culture that were over-irrigated during the recent hot period. **Phytophthora blight** infected plants are wilted and a black, girdling lesion is present at the base of the stem at or below the soil surface. For both diseases, avoid high soil moisture conditions. Use tensiometers to schedule irrigation

in polyethylene culture; grade ends of fields to allow excess water to leave the field following rainfall; and apply mefenoxam (Ridomil Gold or Ultra Flourish) via drip irrigation every 21 days. Use the labeled rate of mefenoxam on a broadcast acre basis, and the actual amount applied/mulched acre will depend on the percentage of the acre that is covered with mulch (i.e. use 1 pt/ broadcast A of Ridomil Gold 4E; if beds are on 6 ft centers and mulch covers a 3 ft wide bed, then 50% of the acre is being treated. Therefore, ½ pt of fungicide will be used on an acre area of field).

✓ **Potato (white):** Conditions have been favorable for the development of **late blight**. All fields should receive an application of a protectant fungicide (mancozeb, metiram or chlorothalonil) at this time for control.

✓ **Spinach:** **White rust** is present in high levels in some fields at this time. Apply Aliette as a foliar spray for control.

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

✓ **Tomato:** **Phytophthora blight** is present in several fields at this time. Infected plants are completely wilted, and a black, girdling lesion is present at the base of the plant. Improve the drainage in the field; grade the ends of the field to allow excess water to leave the field during rainfalls; and apply mefenoxam (Ridomil Gold or Ultra Flourish) via drip irrigation or as a soil surface application, and repeat application 21 days later. **Bacterial canker** is present in some fields at this time. Infected plants are wilted, a dark lesion is present along the stems, and leaves have marginal necrosis and chlorosis present. Avoid working in the field while the foliage is wet, and apply a copper fungicide + mancozeb as a foliar spray to reduce spread. 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**. □

## Pest Notes

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

✓ **General:** Both the blacklight traps and the pheromone traps are catching several species of **stinkbugs**. These pests can cause problems in several crops, including beans, tomatoes, greens, and others. Closely watch for increasing numbers of these pests in the field as well as in fields of alfalfa or soybean located next to vegetable fields. When the field crops are harvested, **stinkbugs** from those fields tend to migrate to nearby food sources, which may include vegetable crops.

✓ **Cucumber:** High populations of **cucumber beetles** are found on many cucurbits throughout southern New Jersey. Foliage and flowers have been damaged. Also, agricultural agents have brought in plants dying from bacterial wilt, the disease transmitted by **cucumber beetles**. There is no treatment for infected plants, but spraying for **beetles** will reduce the spread of the disease throughout the field. Adios, Asana, Guthion, Lannate, methoxychlor, Ambush, Pounce, Sevin, and Thiodan are registered for control of **cucumber beetles** on most cucurbits. Consult label for specific crop, rates, and restrictions.

✓ **Eggplant:** The **aphid** populations are increasing in most crops, including eggplant. Growers have recently brought in leaves infested with **green peach aphids** (adults and nymphs). Recommended materials include Lannate, MSR, Thiodan, Dibrom, and Vydate. Of these, Thiodan and Vydate will also help control **Colorado potato beetle** larvae. Although Provado is registered for **potato beetle** and **aphid** control, it is wise to not use this material at this time of year on eggplant to reduce or delay of potential insecticide resistance of **Colorado potato beetles** to imidacloprid (Admire, Provado).

✓ **Potato:** Fields treated earlier with imidacloprid (Admire 2FS) still have very low populations of **potato beetles** and other early season pests. However, plants treated with this material are beginning to show some insect damage (**potato beetles**, **leafhoppers**). Monitor fields closely at this time to detect increasing populations of **leafhoppers** and **potato beetles**. **Leafhoppers** are usually difficult to detect without close inspection, and early detection is extremely important to prevent serious damage. Consult pages 164-165 of the *1999 Commercial Vegetable Production Recommendations* for more information on insecticides for **leafhoppers**, rates, restrictions, etc.

✓ **Tomato:** Agricultural agents have found low numbers of **thrips** on tomato plants. Guthion, Monitor, Provado, Danitor, and SpinTor are registered

for use on tomatoes for **thrips** control. **Thrips** hide in the flowers, and thorough coverage (high volume, high pressure) may be necessary for satisfactory control. A second application 5-7 days after the first application may be necessary for control of high populations of **thrips**.

**Colorado potato beetle** larvae are reported on tomatoes in several areas. Small larvae are much easier to control than large larvae and/or adult **potato beetles**. Effective materials include AgriMek, Raven (a biological insecticide), cryolite, Ecozin, Guthion, SpinTor, Thiodan and Vydate. Avoid the use of Provado at this time to reduce the potential development of insecticide resistance to imidacloprid by **potato beetles**. Consult page 153 of the *1999 Commercial Vegetable Production Recommendations* for more information concerning threshold levels, rates, restrictions, etc. □

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## Deer Survey Results On-Line

Rutgers' New Jersey Agricultural Experiment Station (NJAES) Center for Wildlife Damage Control conducted a 65 question survey of New Jersey's farmers in 1998 to improve understanding of how deer, and current deer management practices, impact agriculture. This comprehensive opinion survey determined farmers' perceptions of deer and identified and quantified how current deer management practices impact their farming. Survey results should lead to improved deer management programs that are more responsive to the needs of farmers seeking solutions to crop damage.

The Rutgers Deer Survey Results with color maps are now available on the Web: <http://www.rce.rutgers.edu/programs/wdc/deer.htm>. □

# Vegetable IPM Update

Kristian Holmstrom and Sarah Walker,  
Program Associates in Vegetable IPM

## Sweet Corn

The first flight of adult **European corn borer (ECB)** is now in decline throughout the southern counties. In central and northern counties, trap catches remain moderate. Feeding in whorl to tassel stage sweet corn is generally high at this time. Plantings from whorl stage through full tassel should be monitored weekly for signs of **ECB** feeding. Consider treating when 12% or more plants are infested. An insecticide application is critical at the full tassel stage to control **ECB** larvae moving from the tassel to the ear zone. The highest nightly average blacklight trap catches are:

New Egypt	11	Centerton	3	Sykesville	3
Hackettstown	6	Farmingdale	3	Flanders	2
Sewell	5	Manville	3	Quakertown	2
Indian Mills	4	Matawan	3	Sergeantsville	2

**Corn earworm (CEW)** catches are generally increasing throughout the state. It is critical now to protect silking plantings from ear infestation by this pest. In some areas in central and northern counties, pretassel stage plantings are heavily infested with **CEW** despite low catches in blacklight traps. These larvae may be found feeding in tassels. Large larvae are not likely to cause ear damage, as they will move to the soil to pupate prior to ears forming. Small **CEW** larvae, however, may move down the stalk to the ears much the same way **ECB** does. Include **CEW** infested plants in the overall sample, and consider treating when 12% or more plants are infested with any larvae. The highest nightly average blacklight trap catches are:

Folsom	4	Fishing Creek	2	Cedarville	1
Sewell	4	Hammonton	2	Cranbury	1
Crosswicks	2	Indian Mills	2	Farmingdale	1
Elm	2	New Egypt	2	Hackettstown	1

Adult **fall armyworm (FAW)** has begun to appear in pheromone traps in the southern counties this week. This pest favors seedling and young whorl stage corn. Plantings in the southern counties, particularly in coastal regions, should be monitored now for the presence of **FAW**. This pest causes ragged holes in corn foliage. Consider treatment when 12% or more plants are infested with any larvae.

## General Sweet Corn Spray Schedule

Silking stage:	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.

## Cole Crops

In central and northern counties, **diamondback moth (DBM)** larvae have increased significantly over the past week. **Imported cabbageworm (ICW)** is still active and continues to threaten plantings. These pests will often feed beneath the forming heads of cabbage and broccoli, so when scouting fields, be sure to check these areas. Low levels of **cabbage looper (CL)** may also be found in central and southern areas. As yet, they have not appeared in the northern counties. Consider treating plantings of heading type cole crops when 12% of plants are infested with any larvae prior to heading or when 5% of plants are infested and heads are present. Cole crop plantings should be plowed under as soon as possible after harvest to prevent **DBM** from increasing in them and moving into adjacent plantings.

## Peppers

In areas where the corn borer population is greater than 1-2 per night, and 1/2 inch fruit is present, fruit needs to be protected to prevent borer infestation. Continue to monitor fields for **aphid** levels and consider the presence of natural control before treating fields. Although we have not seen two-spotted spider mites yet, we are checking field edges for mites, especially if adjacent fields are harvested or mowed. Check all fields also for the presence of **phytophthora**, especially in the low spots or areas of high soil moisture. If possible, rogue infested plants, and for black plastic mulch culture remove the plastic up at least two feet into the non-infested area to prevent the spread of **phytophthora** under the plastic. Also make sure the ends of the rows are clear for water drainage out of the field.

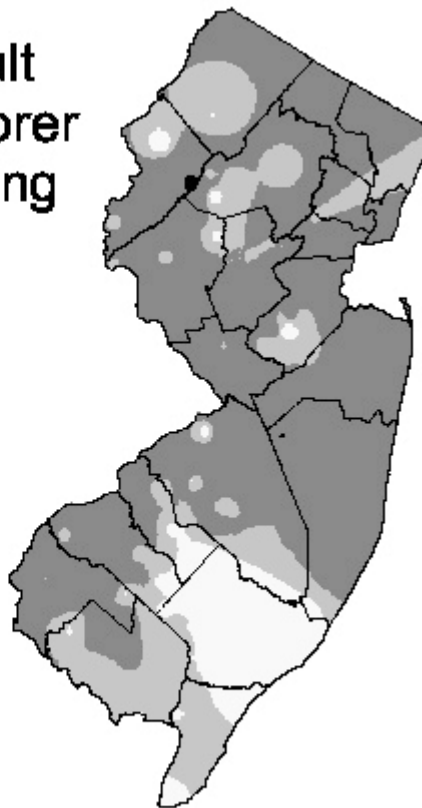
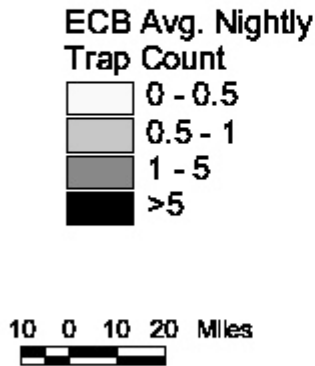
## White Potato

In the blacklight traps located in potatoes in Salem and Cumberland counties, the first generation **ECB** moth flight is over. Treatment for corn borers now is not recommended in infested fields because the borers should be into the stems and will be protected from the spray. For the rest of the season continue to scout fields primarily for **potato leafhoppers, aphids, and Colorado potato beetles**.

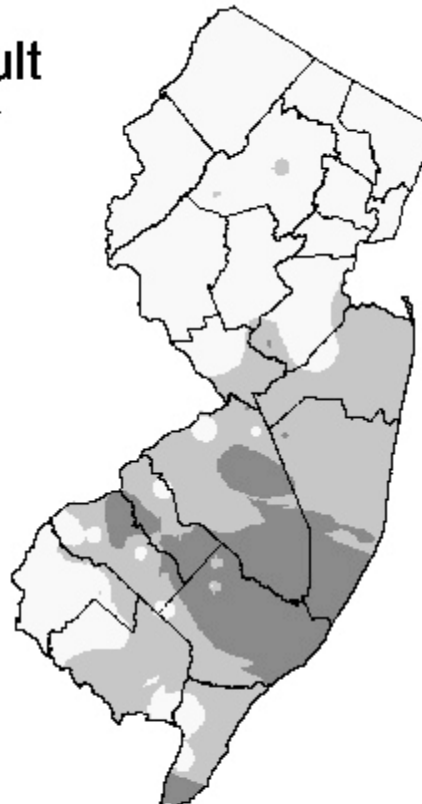
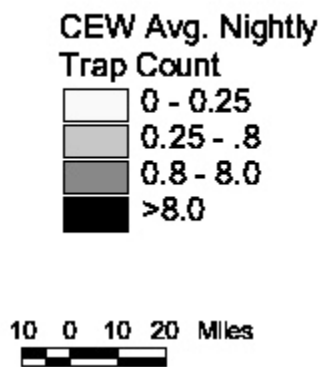
Please note that **ECB** and **CEW** maps will not be published in next week's newsletter. They will resume the week of 6/28.

SEE ECB AND CEW DISTRIBUTION MAPS ON PAGE 5

## Distribution of Adult European Corn Borer for the Week Ending June 16 1999



## Distribution of Adult Corn Earworm for the Week Ending June 16 1999



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

### TICKS FROM PAGE 1

'bull's eye' rash (2 inches or more), is only a symptom of Lyme disease (and also 'Lyme-like' disease, vectored by the Lone Star tick). Deer ticks may also be co-infected with both HGE and Lyme Disease. Babesiosis is another relatively rare disease vectored by ticks. See a doctor or medical professional if you exhibit symptoms of Lyme Disease or any other tick borne disease. Also be aware that a Lyme disease vaccine is now available, but 3 doses are required for protection.

Research shows that 85% or more of nymphs are found in the woods, typically from ground level to 4 - 6 inch high vegetation. This location affords them the best likelihood of finding a small animal to feed upon. Ticks don't fly, they don't jump, and they don't 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 or mow the shrubby understory layer of the adjacent forest to somewhat reduce the tick potential, but this has to be repeated annually.

Only 4% or so of deer tick nymphs are found in the lawn. Turfgrass that is maintained at the recommended 3 -4 inch mowing height is too hot and dry an environment for the immature tick. Turfgrass areas in full sun are thus a low priority for tick treatment. Instead, focus treatments to a barrier 10-ft. or so into the woods, and a barrier treatment along the edge of the woods (where the forest meets the lawn or landscaped beds). Pesticide treatments targeting

### TREATMENTS ON PAGE 6

nymphs need only be applied once, in late May or early June. Granular insecticides have shown superior control (> 90%) in research trials. Apply granular materials with a chest mounted cyclone spreader. Labeled insecticides include carbaryl (Sevin), Permethrin, chlorpyrifos (Dursban), Diazinon, and Tempo 2. Note that successful treatment of nymphs will not prevent the larval or adult stages of the tick, because of the 2-year life cycle. Damminix, a product that provides insecticide-laced nesting material to mice, is also available for use in conjunction with

other control tactics. (Note that liquid insecticide treatments are most appropriate for adult tick control in November and/or April, after leaves drop from trees/before foliage appears on trees. Control levels >95% have been documented).

For more information, call your county Cooperative Extension office, and ask for a copy of the free recently updated fact sheet, 'Prevent Tick Bites: Prevent Lyme Disease' (FS 443). □

## Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal. Extremes were 98 degrees at several locations on the 8th and 42 degrees at Charlotteburg on the 11th. Weekly rainfall averaged 0.12 inches north, 0.17 inches central, and 0.14 inches south. The heaviest 24 hour total was 0.60 inches at Trenton on the 13th to the 14th. Estimated soil moisture, in percent of field capacity, this past week averaged 58 percent north, 43 percent central and 26 percent south. Four inch soil temperatures averaged 69 degrees north, 71 degrees central and 72 degrees south.

### Weather Summary for the Week Ending 8 am Monday 6/14/99

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.08	9.89	-3.30	96	48	71.	3	635	69	50
CANOE BROOK	.09	9.59	-4.76	98	48	73.	5	779	249	55
CHARLOTTEBURG	.21	11.61	-2.74	94	42	68.	3	503	108	53
FLEMINGTON	.05	9.02	-4.63	96	47	72.	4	681	129	58
LONG VALLEY	.15	9.07	-5.58	90	48	69.	3	534	90	55
FREEHOLD	.10	9.39	-4.11	98	53	73.	4	783	152	52
LONG BRANCH	.03	9.91	-3.81	97	58	71.	3	684	112	28
NEW BRUNSWICK	.19	10.76	-2.47	96	51	72.	2	729	56	64
PEMBERTON	.10	10.81	-2.15	98	50	72.	2	807	145	26
TOMS RIVER	.00	5.12	-8.31	96	54	70.	3	659	88	24
TRENTON	.60	11.95	-.29	93	50	71.	0	644	-72	55
CAPE MAY COURT HOUSE	.08	6.93	-4.95	95	56	72.	3	771	132	16
DOWNTOWN	.21	10.29	-1.85	94	52	72.	2	780	42	33
HAMMONTON	.17	8.94	-3.76	97	53	72.	1	780	71	25
POMONA	.16	9.30	-2.39	98	53	73.	4	746	102	27
SEABROOK	.20	10.04	-1.39	96	56	73.	2	883	139	33
ATLANTIC CITY MARINA	.03	7.46	-3.62	95	62	72.	4	782	191	20
WES KLINE — GDD BASE 40 PINEY HOLLOW										
Last Week MM (Ending 6/7/99)										
This Week 226 (Ending 6/14/99)										

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