

# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 21, 2000



## INSIDE

Farm Pond Algae Control .....	1
Pest Notes .....	2
Veg Crops Diseases .....	2
Weekly Weather Summary .....	3
IPM Update .....	4

## Farm Pond Algae Control

*Raymond J. Samulis, Burlington County Agricultural Agent*

**W**e often consider algae growth in farm ponds a summer problem. Observations I made this past winter have led me to believe that due to recent mild winters, algae continued to grow all winter. Heavy algae growth can cause serious oxygen deficiency problems which result in fish kills. Algae can also cause problems by clogging irrigation intake screens, which usually results in automatic pump shut down.

When we look at the root causes of algae problems, both high phosphorous and nitrogen are suspect. You can measure the relative levels of these nutrients through a conductivity meter that measures soluble salts. This can be tested by a simple, inexpensive hand held tool all the way up to the computerized instrument I use, which tests six different water quality measurements at once.

Water temperature is another factor that encourages algae growth in farm ponds. As temperature increases, so does algae growth. It appears to me that this spring's early warm period resulted in early warming of water, which in turn has exacerbated algae problems. The early water warming is also evident when you look at this year's ocean temperatures.

Interestingly, algae can be a double-edged sword when it comes to water oxygen levels. Since algae is photosynthetic (green), during the day it will give off oxygen into the water as part of this process. Conversely, during the night the respiration process will use up oxygen and lower the levels in water. As dead algae decomposes, the decaying process will also lower oxygen levels.

Correcting algae problems can get complicated. There are many different herbicides that are registered for this purpose; however, there are significant restrictions for their use. If your farm pond has no inflow and outflow, you may be able to use certain algaecides such as copper sulfate. If there is inflow or outflow, you will be required to get a Category 5 Pesticide Applicator License. There are other considerations such as number of employees, pond size, etc., which also trigger the need for a Category 5 License. The way to determine which category your farm is in is to see the requirements in extension bulletins FS153 - *Aquatic Weed Control* and FS155 - *Guidelines for Aquatic Pesticide Applications Involving Water Intakes or Water Use Areas*.

*SEE ALGAE ON PAGE 3*

## Pest Notes

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

✓ **General: Slugs** have been reported to be causing damage to several crops, including corn, tomatoes and cucurbits. These pests can shred the foliage, and their feeding usually has characteristic “slime” trails around the feeding sites. The slime trails may be dried, appearing as a silvery streak across the plant or the ground. Metadehyde is a bait that is labeled for nearly all crops that is effective against **slugs**. Most foliar sprays of insecticides are ineffective, but the bait works well if not too dry or old. Heavy rains also tend to rapidly break down the baits, so it may need to be reapplied after downpours. Consult the label for all rates, restrictions, and application methods in various vegetable crops. Note that **slugs** will be less of a problem as the crop gets older, and as the weather becomes dry.

✓ **Cabbage: Imported cabbageworms** are the primary pest in cole crops at this time, although some **diamondback moth** larvae are active. All of the listed pesticides are effective against the **imported cabbageworms**, but only a few are effective against **diamondback moth**. Make sure you know which pest is present then select the appropriate material. For **diamondback moth** larvae, the *B.t.*'s (biological insecticides), Lannate, and SpinTor have been used successfully. Apply the selected material *before* the population is large and much damage is present, as it is very difficult to manage an established population of these pests.

✓ **Corn (sweet): Corn earworms** have been damaging the whorls of corn throughout the state, especially in the central southern portions. Lannate or any of the pyrethroids (Asana, Baythroid, Pounce, Ambush, or Warrior) are all effective against **corn earworms** in the whorl stage. Use high gallonage (50-75 gallons per acre), high-pressure (greater than 40 psi) to force the spray into the whorl to contact the **corn earworm** larvae for best control. After one spray, monitor the fields to find out the rate of effectiveness you obtained. Remember that Capture is labeled on sweet corn in New Jersey *except* for coastal counties, which includes nearly all of southern New Jersey.

✓ **Pepper (bell):** We have applied to the NJDEP for a Special Local Needs Label (24-c) for up to 6 applications of Orthene 75S (acephate) on bell peppers for control of the **European corn borer**. We will notify all growers/ag agents when this label is approved.

✓ **Tomato:** Several growers report that the **thrips** population is building up to a level that causes concern. Damage has been noted to the leaves as a specking of the tissue, and **thrips** can be easily found in the flowers. Effective control of **thrips** is obtained using either Guthion, Monitor, Provado or SpinTor as a foliar spray. Direct the spray into the plant canopy, using adequate spray coverage so that spray enters the flowers and dense foliage. **Thrips**, when numerous, can also cause gold flecking on the fruit as it develops and ripens, so it is recommended to keep the **thrips** population to a manageable level. □

## Vegetable Crops Diseases

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

✓ **Bean, (snap): Pythium root rot** is present in some fields at this time. Infected plants wilt, leaves are scorched a tan color, and a necrotic lesion extends up the stem from the soil line. The stem is hollow at the lesion. Plow down previous crop debris and allow several days prior to planting beans, and use Ridomil at seeding for control.

✓ **Beet:** Maintain applications of a copper fungicide every 7-10 days for control of **leaf spots**.

✓ **Cole crops: Wind damage** is present on red cabbage in some fields. Plants are girdled at the soil line. Maintain applications of maneb every 7-10 days for control of **Alternaria leaf spot & downy mildew**.

✓ **Cucumber:** Maintain applications of a copper fungicide + mancozeb every 7 days for control of **angular leaf spot** and the fruit rot phase of **Phytophthora blight**. Observe fields for the presence of **anthracnose**. Once observed, apply Bravo + Benlate or Topsin M and repeat every 7 days.

✓ **Greens: Drought damage** is present in some fields of mustard at this time. Symptoms include tan areas along the margins of older leaves.

✓ **Muskmelon:** Maintain applications of Bravo or mancozeb alternated with Quadris every 7-10 days for control of **Alternaria blight**.

✓ **Parsley: Bacterial leaf spot** is present in some fields at this time. Avoid working in fields while the foliage is wet, and apply a copper fungicide every 7 days for control.

✓ **Pepper:** Maintain applications of mfenoxam (Ridomil Gold or Ultra Flourish) every 21 days for control of **Phytophthora blight**.

✓ **Potato, (white):** Weather conditions are favorable for the development of **late blight**. Maintain applications of Bravo or mancozeb every 7 days for prevention.

✓ **Pumpkin & winter squash:** Once the vines begin to run, apply Bravo or mancozeb and alternate with Quadris every 7-10 days for control of **foliar diseases**.

SEE DISEASES ON PAGE 3

✓ **Squash, summer:** Apply Ridomil Gold Copper, Ridomil Gold Bravo or Floutronil as a foliar spray every 14 days for control of **Phytophthora blight**.

✓ **Tomato: Bacterial canker** is present in some fields at this time. Infected plants have leaves with a pronounced marginal necrosis. A chlorotic area extends from the necrotic area into the leaf, and veins are black. Avoid working in fields while the foliage is wet, and maintain applications of a copper fungicide + mancozeb for control. **Timber rot** is present in some fields. Infected plants are wilted with a tan, girdling lesion at the base of the stem. Within the stem in the area of the lesion, white-black sclerotia of the pathogen are present in some cases. Applications of Benlate shortly after transplanting would have reduced the incidence of the disease. The disease will not spread at this time. Weather conditions are favorable for **late blight**, therefore, maintain applications of Bravo or Quadris every 7 days for prevention. □

Effective algae control should begin early, before invasive new algae mats have developed. Most herbicide treatments require you to calculate the total volume of water in the pond. This measurement can be used to determine how many pounds of copper sulfate or other aquatic herbicide are needed for control. The rules have changed recently for copper sulfate use. The highest recommended rate is now 1/2 ppm instead of the previous 1 ppm. In ponds with serious algae problems, it may be better to treat 1/2 of the pond at a time to decrease problems with low oxygen as the dead algae rapidly decays.

Algae problems can be effectively dealt with if care is taken in preparation. Be sure to carefully calculate the total pond volume. Understand the restrictions on each site and algaecide used. Category 5 permits may be needed in some instances. Let's all hope for adequate rainfall this season, which is still one of the most effective algae deterrents. □

## Weekly Weather Summary

*Keith Arnesen, Ph.D., Agricultural Meteorologist*

Temperatures averaged above normal south and below normal north. Extremes were 93 at Pemberton and Hammonton on the 13th and 18th and 45 degrees at Charlotteburg on the 14th. Weekly rainfall averaged 1.02 inches north, 1.40 inches central, and 1.32 inches south. The heaviest 24 hour total was 1.41 inches at Atlantic City Marina on the 18th to the 19th. Estimated soil moisture, in percent of field capacity, this past week averaged 95 percent north, 82 percent central and 58 percent south. Four inch soil temperatures averaged 67 degrees north, 71 degrees central and 72 degrees south.

**Weather Summary for the Week Ending 8 am Monday 6/19/00**

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	1.44	17.98	4.15	87	53	65.	-3	727	71	91
CANOE BROOK	.69	13.09	-1.89	90	53	67.	-2	822	200	88
CHARLOTTEBURG	.96	16.43	1.39	87	45	62.	-4	543	70	92
FLEMINGTON	1.02	14.97	.70	89	53	66.	-3	852	205	91
LONG VALLEY	.99	15.73	.42	84	52	64.	-3	628	102	92
FREEHOLD	.72	10.99	-3.09	90	54	68.	-2	900	169	75
LONG BRANCH	1.54	14.19	-.05	91	54	67.	-2	742	75	89
NEW BRUNSWICK	1.31	14.55	.78	90	54	68.	-3	868	93	94
PEMBERTON	1.57	13.19	-.36	93	57	74.	4	1268	506	82
TOMS RIVER	2.55	14.03	.03	92	57	70.	1	860	197	100
TRENTON	.72	12.32	-.46	89	55	69.	-3	933	110	61
CAPE MAY COURT HOUSE	.96	13.95	1.55	90	58	72.	2	894	157	61
DOWNSTOWN	1.17	13.01	.35	91	57	73.	1	973	129	72
GLASSBORO	.93	13.64	-.01	91	58	73.	2	1050	227	67
HAMMONTON	1.68	11.92	-1.37	93	56	73.	1	927	112	80
POMONA	1.69	11.51	-.65	92	57	73.	3	884	141	93
SEABROOK	.91	14.31	2.30	91	57	73.	1	1048	198	61
ATLANTIC CITY MARINA	1.90	12.94	1.38	88	59	71.	2	883	199	100
WOODSTOWN	data will no longer be available due to unexpected passing of Ed Flitcraft the observer.									
WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week 209 (Ending 6/12/00) This Week 233 (Ending 6/19/00)										

# IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

## Cole Crops

Small **cabbage looper (CL)** larvae have begun to appear in some cole crop plantings in central and southern counties. The main pest throughout the state at this time is **imported cabbage worm (ICW)**. Heavy egg laying is occurring now, and plantings should be monitored once a week to determine infestation levels. Be sure to check the innermost leaves of the plants and along the mid vein of leaves for **ICW**. Check 5 plants each in 10 consecutive locations. Consider treating when greater than 12% of plants are infested with any larvae prior to heading or when greater than 5% of plants are infested and heads are present.

## Snap and Lima Beans

**Potato leafhopper (PLH)** adults and nymphs may now be found in snap bean fields throughout the state. In the northern counties, PLH numbers have increased significantly over the past week in snap beans. Check bean fields now for the presence of **PLH** adults and nymphs. Using a sweep net, make 10 sweeps in 10 locations in the field. The treatment levels are 5 per sweep during prebloom, 12 per sweep during bloom, or 25 per sweep during pod development. If you don't have a sweep net, check the undersides of the leaves for adults and nymphs. Usually the presence of **PLH** nymphs is an indication that a population is becoming established. **PLH** populations can increase rapidly to damaging levels, especially under hot and dry conditions. Check fields at least once a week for **PLH** adults, and increase monitoring if nymphs begin to show up.

## Peppers

Pepper plantings should be protected from **ECB** infestations if moths are flying in your area (see map) and half-inch or greater size fruit are present on the plants. The first generation activity has declined in some areas, but some traps continue to show threshold levels (greater than 1/night). Larval damage will continue for some time after the adult flight peaks, so plantings should still be monitored for the presence of **ECB** egg masses as well as other pests.

## Sweet Corn

**ECB** adult activity is moderate in the northern counties and relatively low in the south at this time. As the **ECB** adult flight declines, larval feeding in whorl and pretassel stage corn will increase. This week in Morris, Hunterdon and Warren Counties, feeding in whorl stage sweet corn plantings has been found in excess of 30%. It is important to reduce the larval **ECB**

population in sweet corn plantings prior to the onset of full silk, as larvae will have migrated down the stalk and into the ears by that time. Scout fields weekly, and follow the action threshold of 12% plants infested. A particularly critical stage to treat sweet corn for **ECB** is from when the tassel begins to spread to first silk. At this time, **ECB** larvae are often exposed in the tassel or on the outside of the stalk.

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

Phillipsburg	5	Morristown	2	Denville	2
Sergeantsville	5	Beemerville	2	Ellisdale	2
Manville	4	Califon	2	Jutland	2
Hopewell	3	Chester	2	Little York	2

First generation adult **CEW** moth levels remain moderate in many of the southern and central traps (see **CEW** map). In northern counties where most plantings have not yet silked, **CEW** larvae are easily found in the young tassels. Extremely small larvae continue to be found in these plantings, indicating that egg laying is occurring and plantings will be at high risk for infestation as they go to silk. In areas with silking corn and high numbers of **CEW** moths in the traps, make sure to begin insecticide applications at the first sign of silk and maintain strict 3-day spray schedules until this first generation activity declines. In areas where most corn is not yet in the silk stage, check whorl and pretassel plantings for evidence of worm feeding. The same threshold of 12% plants infested applies.

The highest average nightly **CEW** blacklight trap catches are:

Tabernacle	10	Centerton	6	Wall	5
East Vineland	9	Hammonton	6	Cohansey	4
Chapel Heights	8	Folsom	5	Indian Mills	4
Springdale	7	Medford	5	Fishing Crk.	3

In several late whorl and pretassel plantings in Morris and Warren counties, low levels of **corn leaf rust** have been found over the past week. Recent cool, wet weather has favored this disease, but so far it has not been found in seedling or early whorl stage corn. When scouting fields for insects, be sure to check plantings for pustules containing the reddish spores on the leaves. If pustules are found on seedling or early whorl stage sweet corn, fungicide applications may be warranted. Many sweet corn varieties are resistant to **rust**, so check with the seed source.

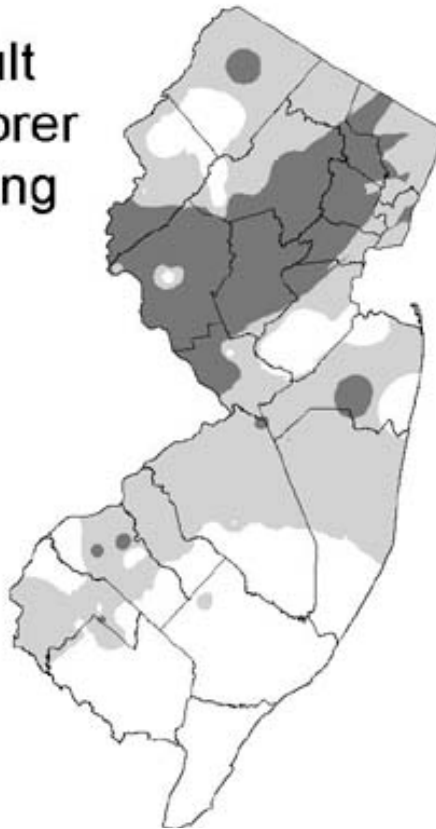
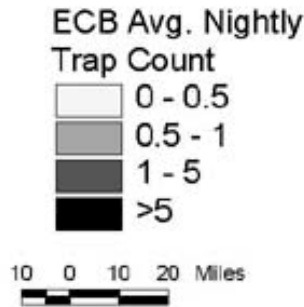
## General Sweet Corn Spray Schedule

Silking corn:	North	5 - 6 days
	Central	3 - day
	South	3 - day

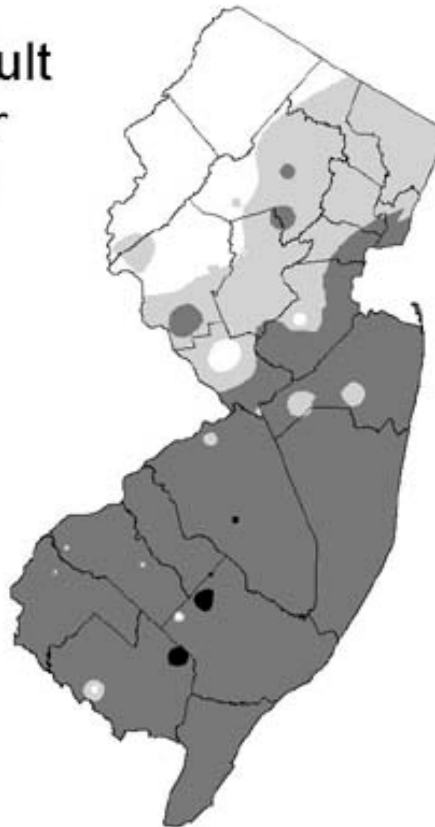
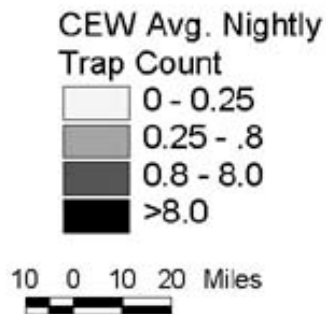
\* These are general spray recommendations for large areas of the state. Growers can increase or decrease the intervals based on their own local situations.

SEE IPM ON PAGE 5

## Distribution of Adult European Corn Borer for the Week Ending June 21, 2000



## Distribution of Adult Corn Earworm for the Week Ending June 21, 2000



### Tomatoes

With the recent appearance of **bacterial infections** in some plantings, it is important to avoid working in tomato fields when the foliage is wet. This includes pest management scouting. If it is necessary to enter fields with **bacterial speck, spot or canker**, do so after completing scouting in uninfected plantings. If necessary, arrange the work schedule so that farms with **bacterial infections** are visited after those where these infections are absent. For control measures, consult the *2000 Commercial Vegetable Production Recommendations*. □

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

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. Ghidui, 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)  
Cape May, Russell Blair (609-465-5115)  
Cumberland, Wesley Kline, Ph.D. (856-451-2800)  
Gloucester, Michelle Infante-Casella (856-307-6450)  
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 (856-769-0090)  
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

Rutgers Cooperative Extension (RCE) provides information and educational services to all people without regard to sex, race, color, national origin, disability, or age. RCE is an Equal Opportunity Employer.

**Pesticide User Responsibility:** Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

**Use of Trade Names:** No discrimination or endorsement is intended in the use of trade names in this publication. In some instances a compound may be sold under different trade names and may vary as to label clearances.

**Reproduction of Articles:** RCE invites reproduction of individual articles, source cited with complete article name, author name, followed by Rutgers Cooperative Extension, Plant & Pest Advisory Newsletter.