

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

AUGUST 18, 1999

IPM Update

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CORN EARWORM ALERT

The adult **corn earworm (CEW)** population has increased dramatically in blacklight traps statewide, likely due to the storms that occurred over the weekend. See the **CEW** statewide population distribution map and the sweet corn section for the locations with the highest nightly blacklight trap catches. Crops that are at risk for infestation include sweet corn, peppers, tomatoes, snap and lima beans, and lettuce. With high daily temperatures the eggs will be hatching in as little as 3 days, so we can expect **CEW** larval infestations by the end of this week. Consult the *1999 Commercial Vegetable Production Recommendations* book for appropriate control measures.

Cole Crops

All three caterpillar pests, cabbage loopers (CL), diamondbacks (DBM), and imported cabbageworms (ICW), **should be active on cole crops at this time throughout most of the state.** CL larvae are reported by Garden State Pest Management to be increasing in the central counties, and the storms that are resulting in high numbers of CEW moths will likely be bringing in CL moths as well. Scout fields at least weekly for the presence of larvae. Treat cabbage when 20% of the plants are infested with any larvae prior to heading. Treat leafy greens when 12% of the plants are infested.

Flea beetle activity continues to be high in cole crops. Scout newly transplanted or newly emerged direct-seeded plants at least once a week, preferably twice a week, for the presence of **flea beetle** adults and damage. Consider treatment if more than 1 **flea beetle** is found per plant and holes are present on the leaves. Make sure to check fields within a week following an application to check for re-infestations of both **flea beetles** and **worms**.

Lima and Snap Beans

CEW adult populations are very high and larvae may infest both snap and lima beans. For processing snap beans, treatments for **European corn borer (ECB)** are still recommended at the bloom and pin stages. Following the pin spray, snap beans should be treated on a 5 to 7 day spray schedule for **CEW** in areas where blacklight trap counts average 20 or more per night. Increase monitoring of lima bean fields to

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twice a week for the presence of **CEW** larvae, and consider treatment if 1-2 larvae are found in 6 foot of row.

Peppers

CEW adult populations are very high at this time, and **ECB** populations remain at moderate levels throughout most of the state (see accompanying maps). These two pests are not able to be detected by scouting until it is too late for control, so maintain 5 to 7 day spray schedules to prevent fruit infestation. **CEW** eggs are laid singly on leaves near fruit, and newly hatched **CEW** larvae will infest pepper fruit through the cap similar to **ECB**. Some **ECB** materials are not effective against **CEW** larvae so make sure to consult the *1999 Commercial Vegetable Production Recommendations* book for appropriate control measures for both of these pests.

Beet armyworm (BAW) adult pheromone trap catches have also increased in parts of Salem, Cumberland, and Atlantic Counties. Scout fields for the presence of larvae feeding in the canopy. **BAW** larvae are dull green with a light colored stripe along each side, and usually have a black spot on the second segment behind the head. **CL** have also been spotted feeding in the canopy of our unsprayed pepper plots. **CL** are usually not a big concern, and control measures for **ECB** and **CEW** should eliminate any problems in commercial fields.

Tomatoes

Both fresh-market and processing tomatoes are at risk from **CEW** (also called the **tomato fruitworm**) infestation due to the high populations found this week in blacklight traps throughout the state. Larvae tend to bore holes in the fruit near the stem end and can usually be found feeding inside the fruit. The larvae vary greatly in color, but can be distinguished from other caterpillars by the presence of more obvious hairs and tiny spines covering the body. Fields will need preventative control measures in areas where adult counts are high, greater than 20 per night in local blacklight traps (see the sweet corn section) or greater than 8 per night on the distribution maps. Monitor fields for evidence of fruit damage and larvae in order to evaluate control effectiveness.

Also monitor fields in the southern counties for the presence of **BAW** larvae feeding in the canopy. Adult pheromone trap counts in parts of Salem, Cumberland, and Atlantic Counties have increased significantly over the past weekend, and there are reports of some infestations occurring in Gloucester and Salem Counties. **BAW** infestations can be detected by scouting fields regularly for live larvae and damage. Early detection and use of appropriate control measures are important for control of **BAW**.

Sweet Corn

Adult blacklight trap catches of **ECB** have decreased in some areas but remain moderate to high in others (see distribution map). Continue to monitor fields through the

pre-tassel stage for the presence of fresh feeding damage and treat when 12% of the plants are infested with either **ECB** or **fall armyworm (FAW)** larvae. Tight silking spray schedules for **CEW** (see below) will provide control of possible **ECB** and **FAW** ear infestations as well. The highest average nightly **ECB** blacklight trap catches are as follows:

Shirley	29	Ellisdale	8	Crosswicks	5
Centerton	25	Milltown	7	Hackettstown	4
Cohansey	15	Woodstown	7	Seabrook	4
Millstone	9	Cranbury	6	Medford	3

Adult **CEW** catches have increased dramatically over the weekend, and sweet corn is at great risk of infestation at this time. Maintain tight silk spray schedules to minimize damage from this pest. In areas where the average nightly trap count is greater than 8.0 per night (see distribution map), a 2-day spray schedule may be necessary to prevent **CEW** infestation. As the total corn acreage is declining, **CEW** larvae may also infest any remaining whorl and pre-tassel corn, but the thresholds that apply to **ECB** and **FAW** also apply to **CEW** infestations in those stages (12% plants infested). The highest average nightly **CEW** blacklight trap catches are as follows:

East Vineland	87	Ellisdale	62	Shirley	49
Cohansey	86	Shiloh	56	Pemberton	47
Fishing Creek	76	Millstone	55	Seabrook	44
Chapel Heights	70	Centerton	50	Elm	42

General Sweet Corn Spray Schedule

Silking corn:	North	3 days
	Central	2 - 3 days
	South	2 - 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 **ECB** AND **CEW** DISTRIBUTION MAPS PAGE 3

Drought Briefs

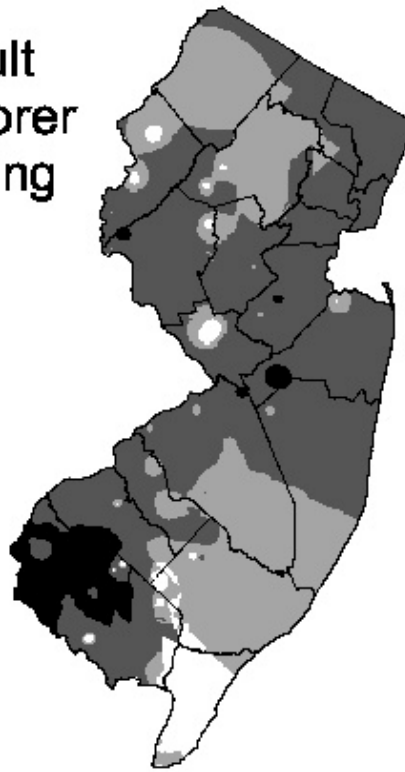
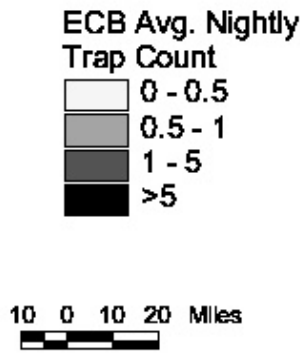
Hot Line

As of August 16, 1999, the New Jersey Department of Agriculture initiated a special drought related "Farmer Information Hotline". The hotline will operate Mon-Fri., 7 am- 8pm for the duration of the drought. The toll free number is 1-877-788-7785.

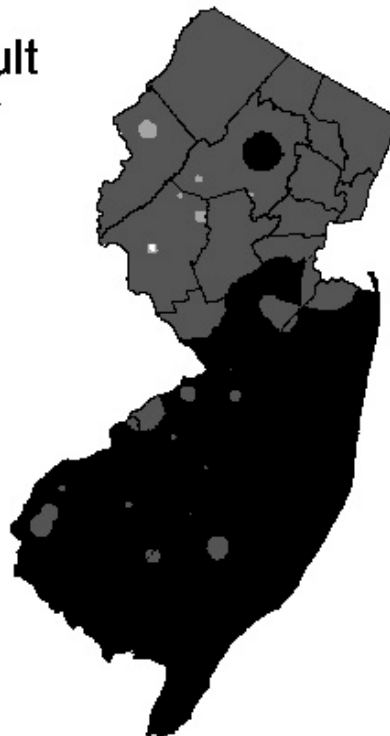
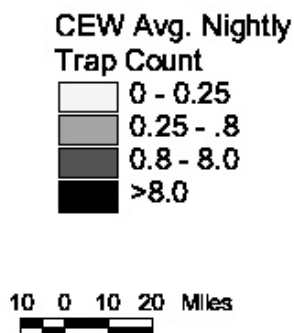
RCE Drought Web Site

The Rutgers Cooperative Extension web site has a special drought section with Extension publications covering agricultural issues. There are also links to other key drought web sites, including NOAA's meteorological information. The site address is: www.rce.rutgers.edu/programs/drought99/index/htm. □

Distribution of Adult European Corn Borer for the Week Ending August 18, 1999



Distribution of Adult Corn Earworm for the Week Ending August 18, 1999



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

Horticultural Research Twilight Meeting

August 31, 1999
6-8:30 p.m. rain or shine
Rutgers Snyder Research and
Extension Farm, Pittstown, NJ

Participate in informal tours and discussions of the following research projects led by: Peter Nitzsche, Morris County Agricultural Agent, Win Cowgill, Hunterdon County Agricultural Agent, Martha Maletta, Hunterdon County Research Associate, William Tietjen, Warren County Agricultural Agent. Extension Specialists cooperating on projects will be on hand.

Fruit

- ❖ Apple and peach cultivar showcase-over 50 cultivars of apple and peach will be on display
- ❖ NE-183 apple cultivar trial
- ❖ NC-140 Rootstock Projects-Gala Cultivar
- ❖ Promalin VS Typy plant growth regulator trial
- ❖ Procure trial for apple sizing
- ❖ Accell PGR for apple sizing trial
- ❖ BASF-125 (Prodigy) trial on apple for tree size control and fireblight suppression
- ❖ Azoxystrobin Fungicide (Quadris, Abound) sensitivity to apple trial

Vegetable

- ❖ Fresh market tomato cultivar trial
 - ❖ Pumpkin fertilization trial
 - ❖ Fungicide evaluation and IPM trial on pumpkins
 - ❖ Presidedress soil nitrate test for fall cabbage trial
 - ❖ Winter squash spacing trial
 - ❖ Cole crop cultivar trial
 - ❖ Potato cultivar trial
- Discussion of drought issues
Worker Protection Standards Update -
Speaker to be announced

Pesticide credits will be available. For more information contact: Peter Nitzsche (973) 285-8300, Win Cowgill (908) 788-1339, or William Tietjen (908) 475-6505

Vegetable Crops

Diseases

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

✓ **Asparagus:** Maintain applications of mancozeb every 10 days for the control of **rust**.

✓ **Bean, (snap):** Observe fields for the presence of **rust**. Infected leaves will contain numerous, small, chlorotic lesions with a tan center. The undersurface of the lesion will contain rusty pustules. Once observed, apply Bravo as a foliar spray, and repeat every 7 days.

✓ **Beet: Root-knot nematode** damage is present on cut beets at this time. Infected beets have numerous large nodules on the taproot below the fleshy root. Preplant soil fumigation will be necessary for control in future years.

✓ **Cole crops:** Maintain applications of Bravo or maneb as a foliar spray every 7-10 days for control of **Alternaria leaf spot & downy mildew**.

✓ **Carrot: Cercospora leaf blight** is severe in some fields at this time. Apply Benlate 50W as a foliar spray every 10 days for control.

✓ **Corn (sweet):** Scout fields for the presence of **rust**. Once observed on fields in the whorl stage or younger, apply a fungicide for control.

✓ **Cucumber:** Maintain applications of Bravo + Benlate or Topsin M every 7 days for control of **foliar diseases**.

✓ **Eggplant:** Maintain applications of a copper fungicide + maneb with a spreader sticker for control of **Phytophthora & Phomopsis fruit rot**.

✓ **Leeks:** Apply Bravo as a foliar spray in transplanted fields every 10 days for control of **purple blotch**.

✓ **Lettuce:** Apply Ronilan or Rovral as a directed spray to the base of plants and surrounding soil shortly after thinning, 10 and 20 days later for control of **drop (Sclerotinia)**. Rovral will also control **bottom rot (Rhizoctonia)**.

✓ **Onion (bunching):** For overwintered plantings, preplant soil fumigate 2-3 weeks prior to seeding for control of **white rot**. **White rot** only occurs on overwintered onions. SEE DISEASES ON PAGE 5

Pest Notes

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

✓ **Dry Weather and the "Worm Effect":** Some important "worm" pests, including **corn earworms**, **fall armyworms**, and **beet armyworms**, are noticeable pests as early as mid-July in many crops throughout this area. These pests have so far been relatively low this year until now, and the numbers of **moths** caught in blacklight and pheromone traps has suddenly increased. It is likely that two factors may play a role in this "arrival" occurrence of **moths** in New Jersey. First, an easy winter last year may have resulted in a high survival rate of predators and parasites that feed on these pests in the southern regions (Florida, etc.), thus resulting in a high predation rate on these pests earlier in the year. And second, there have been no storm fronts coming up the coast from the deep South that normally bring the adult **moths** into our area on the frontal wind currents. Thus these **moths** are now arriving in New Jersey from normal migration activities on their own, and not from the assistance of the storm wind currents! In any case, we are now recording high numbers of the **moths** of these pests in our various traps operated by the Rutgers IPM and the Rutgers Agricultural Research Center-Bridgeton. It is important that growers monitor crops closely for these pests at this time.

✓ **General:** The number of **corn earworm moths** caught in the blacklight traps throughout southern New Jersey has become very high (from 30-100 **moths** per night) in the past 5-7 days. Sweet corn, pepper, lettuce, snapbeans, greens, tomatoes and other crops are susceptible to **corn earworm** damage, and it is critical that these crops be monitored for **earworm** damage, or treated according to the spray programs listed in the *Commercial Vegetable Recommendations* for each crop.

✓ **Cucurbit:** The federal EPA has granted a supplemental label for the use of Provado 1.6 FS and Admire 2FS on virtually all of the cucurbits grown in New Jersey. This material is highly effective against pests such as **aphids**, **leafhoppers** and **cucumber beetles**. The label is a Supplemental Label, and a copy of this label must be in the possession of the user at time of application. Copies of these labels have been forwarded to county agents and distributors. Note that **squash bugs** and various "worm" pests (**squash vine borers**, **cabbage loopers**, etc.) will not be controlled. Refer to label for all rates and restrictions.

✓ **Tomato:** The number of **tomato hornworm moths** caught in the local blacklight traps is extremely high, with up to 10 **moths** trapped per night. The population has been consistently high; indicating that egg oviposition will be continuous in tomato plantings. Monitor frequently for these pests, as pesticide treatments are significantly more effective when applied before the **worms** become mature larvae (before they get too large in size). All of the recommended insecticides are effective, including the biological pesticides (*B.t.'s*) listed in the *1999 Commercial Vegetable Production Recommendations for New Jersey*.

✓ **Potato:** Harvested white potatoes have varying amounts of **wireworm** and **cutworm** damage to the tubers. Once the vines are killed or die back, harvest potatoes as soon as possible to reduce the amount of tuber damage caused by **wireworms** and **cutworms**. The longer the potatoes remain in the ground, the more damage that will occur to the tubers, especially during the dry weather when the insect pests attack any nearby vegetation for moisture. When the vines are dead, only the tubers are left for them. □

Federal EQIP and State Conservation Cost Share Programs

Source: USDA Press Release, August 12, 1999, Somerset, NJ

New Jersey producers can sign up for cost-sharing assistance through October 15, 1999 for funding in Fiscal Year 2000 under USDA's Environmental Quality Incentives Program (EQIP) and the New Jersey Conservation Cost Share Program (CCSP). EQIP and CCSP are authorized to address agriculture's priority natural resource and environmental concerns.

Under these voluntary programs, USDA and the New Jersey Department of Agriculture provide cost-share assistance to family-sized farms for 50 to 90 percent of the costs of implementing conservation systems which also provide environmental protection and enhancement. Approved practices include grassed waterways, filter strips, manure storage facilities, pesticide containment facilities, and capping abandoned wells. Producers may also receive incentive payments for applying such land management practices associated with nutrient, manure, irrigation water, wildlife, and integrated pest management. EQIP, administered by the USDA Natural Resources Conservation Service and Farm Service Agency, also provides farmers with technical and educational assistance.

EQIP and CCSP applications will be evaluated for funding approval based on environmental benefits and other factors. Proposals in New Jersey's priority areas will receive the majority of the USDA funding. The remaining cost-sharing funds will be allocated throughout the state. Priority areas are chosen because of their environmental sensitivity and significant natural resource concerns, such as manure management, soil erosion control, and water quality.

Wayne Maresch, Natural Resources Conservation Service State Conservationist explains, "The Environmental Quality Incentive Program offers New Jersey's agricultural producers many financial incentives to improve water quality, conserve soil, and reduce water use. New Jersey's priority areas and the conservation practices for EQIP and the State program were determined locally by farmers, soil conservation districts, area residents, local government officials, environmental groups and other interested parties."

Samuel R. Race, Executive Secretary of the State Soil Conservation Committee, which is providing the state funding, emphasizes, "The committee is pleased to provide a major increase of cost-share assistance for farmers in New Jersey. Our farmers are strong advocates of conservation, and now by combining EQIP with CCSP, more producers can invest in conservation practices which will help them maintain productive lands while also improving water quality."

Gerard Hlubik, USDA Farm Service Agency Programs Chief, points out, "Interest among farmers in participating in cost-share programs to improve water quality, save water, and reduce soil erosion has been increasing. The Farm Service Agency works closely with producers to determine their eligibility for these conservation programs."

Producers may sign-up for EQIP and CCSP at any USDA Service Center or soil conservation district. Producers can also work with NRCS to develop their own conservation plans without cost sharing. □

DISEASES FROM PAGE 4

✓ **Pepper:** Maintain foliar applications of a copper fungicide + maneb with a spreader sticker every 7-10 days for control of **Phytophthora blight & anthracnose**.

✓ **Pumpkin & winter squash:** Maintain foliar applications of Bravo every 14 days and Quadris on alternate 14 days for control **foliar diseases**.

✓ **Spinach:** Consider growing the varieties 'Vancouver' or 'Fildalgo', which possess resistance to **white rust**. For all fields, apply Ridomil Gold 4E as a soil surface application after seeding for control of **damping-off** caused by **Pythium**, and for early season control of **white rust**. Be sure to moldboard plow fields prior to seeding in the fall to reduce the incidence of **damping-off** caused by **Rhizoctonia**.

✓ **Squash (summer):** Maintain applications of Ridomil Gold/Bravo every 14 days for control of **Phytophthora blight**. On alternate 14 days apply Quadris for control of **powdery mildew**.

✓ **Tomato: Phytophthora root rot** is present in several fields at this time. Infected plants completely wilt, and there is a dark, girdling lesion present at the base of the stem. Apply Ridomil Gold 4E as a soil surface application for control. **Bacterial canker** is present in numerous fields at this time. Infected plants have a severe marginal necrosis present on leaves. Avoid working in the fields while the foliage is wet to reduce spread. □

Deer Fencing Remains Available

Deer fencing remains available from the joint distribution of the New Jersey Department of Agriculture/Division of Fish Game and Wildlife deer fence program.

This program will provide up to 30 rolls of fence, 165 feet in length, to New Jersey farmers who generate in excess of \$10,000 of income from production agriculture and own the land on which the fence is to be erected.

Despite the recent drought which has adversely affected many New Jersey farmers, farmers are encouraged to participate in this program to mitigate the damage they have incurred, and may continue to incur, as a result of deer feeding on their crops.

The fence offered is six foot high, woven wire, high tensil fence with two additional strands of wire to be provided making for an eight foot high fence. Posts and labor are not provided.

If you are interested in receiving an application, please contact the Division of Fish, Game and Wildlife at (609) 292-6685 or the NJDA, Division of Rural Resources at (609) 292-5802. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal. Extremes were 96 degrees at several locations on the 13th and 45 degrees at Charlotteburg on the 10th. Weekly rainfall averaged 1.87 inches north, 2.51 inches central, and 2.00 inches south. The heaviest 24 hour total was 4.10 inches at Trenton on the 13th to the 14th. Estimated soil moisture, in percent of field capacity, this past week averaged 73 percent north, 69 percent central and 48 percent south. Four inch soil temperatures averaged 73 degrees north, 75 degrees central and 75 degrees south.

Weather Summary for the Week Ending 8 am Monday 8/16/99

WEATHER STATIONS	R A I N F A L L			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	1.52	13.25	-8.81	92	51	73.	2	2228	320	85
CANOE BROOK	1.94	14.18	-9.00	96	52	77	6	2522	609	87
CHARLOTTEBURG	2.40	15.85	-7.55	92	45	71	3	1900	395	97
FLEMINGTON	1.70	11.63	-10.75	96	51	76.	4	2322	360	86
LONGVALLEY	1.78	13.14	-10.97	89	51	73	4	2009	312	87
LONG BRANCH	2.11	15.53	-6.37	84	59	73	0	2252	238	88
NEW BRUNSWICK	1.90	14.92	-6.97	94	54	77	4	2448	271	91
PEMBERTON	2.87	16.15	-6.00	96	51	77.	4	2525	389	93
TOMS RIVER	1.41	8.47	-14.00	89	53	75.	3	2248	246	88
TRENTON	4.27	17.70	-3.15	94	52	75.	1	2255	-23	93
CAPE MAY COURT HOUSE	.82	11.17	-8.22	86	59	77.	2	2409	256	44
DOWNSTOWN	1.82	17.17	-3.33	92	54	76.	3	2437	151	89
HAMMONTON	2.77	16.24	-5.26	92	54	76.	2	2435	171	93
POMONA	2.33	16.09	-3.58	89	55	76.	3	2397	285	94
SEABROOK	.94	17.03	-2.66	91	61	77.	3	2588	292	60
ATLANTIC CITY MARINA	3.33	14.14	-4.71	85	65	76.	3	2429	397	100
WOODSTOWN	1.54	16.97	-4.43	95	56	78	NA	2590	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW										
Last Week 249 (Ending 8/9/99)										
This Week 257 (Ending 8/16/99)										

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