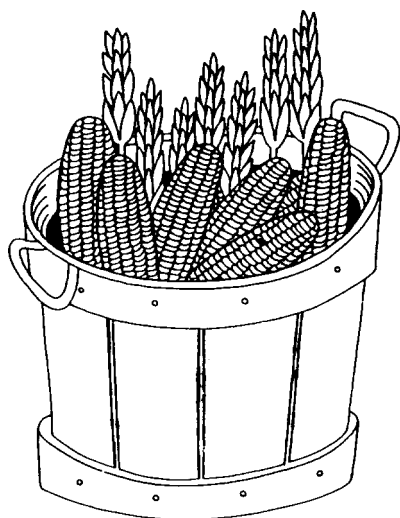


# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

AUGUST 23, 2000



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## Sweet Corn Rust

*Raymond J. Samulis, Burlington County Agricultural Agent*

Rust infestations in New Jersey sweet corn are common later in the fall when temperatures drop and high air moisture results in dew. This in turn prevents plants from drying out until later in the day. Conditions here in New Jersey this season have been very favorable for this disease. Abundant rain and lower than average temperatures both have favored rust especially when temperatures hover in the 54° – 82° F range with relative humidity near 100%.

Recent evaluations of my sweet corn variety trials have shown some rather dramatic differences regarding rust resistance. Some varieties have 100% of leaves with rust pustules while others have 0%. Many other states do rust rating for sweet corn, however, they usually only evaluate yellow varieties. Data from this study should help fill this information gap for locally grown white sweet corn varieties. Although some of the sweet corn varieties tested have heavy amounts of rust on the leaves, I have not observed any which have pustules on the ears. It appears that the concern regarding rust comes from lower yield potential and less from actual quality issues. In any event, it makes better sense to spray fungicides on younger corn at this time. Growers should concentrate on their smaller pre-tasseled corn. The preventative fungicides we recommend are Bravo, Mancozeb, Maneb, or Tilt. There are restrictions for spraying processing sweet corn that can be found on page 148 of our *New Jersey Commercial Vegetable Growers Manual*.

It's certainly interesting how two growing seasons can differ so much. During 1999, we had drought and virtually all the sweet corn varieties tested had no significant suckering. This year's wet season has resulted in all varieties having suckers! I wonder if this amount of extra foliage under the canopy may be partially the cause for increased rust pressures. It is obvious that rust generally starts on the oldest leaves and then works its way up the plant. One interesting study from the University of Wisconsin suggests that rust levels may also be related to the amount of weeds in the field. While this sounds interesting, most sweet corn fields here in New Jersey do not appear to have serious weed problems.

Be sure to scout sweet corn fields for the early signs of rust. Apply recommended fungicides where needed. Concentrate spray efforts on younger fields as early applications prove most effective in controlling this disease. □

# Vegetable Crops Diseases

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

✓ **Asparagus:** More fields infected with **Gray mold (Botrytis)** continue to be reported. Infected ferns turn completely brown in fields with dense fern growth and poor air circulation due to factors such as being surrounded by woods, etc. Applications of mancozeb every 7-10 days will assist in control.

✓ **Bean (snap & lima):** Due to wet soil conditions, any field with flowers present should be treated with a fungicide at this time for protection against **white mold (Sclerotinia)**. Add a spreader-sticker adjuvant to enhance and prolong fungicide activity.

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

✓ **Carrot: Alternaria & Cercospora leaf blights** are present in fields at this time. Maintain applications of Bravo every 10 days for control.

✓ **Cole crops: Bacterial leaf spot** is present on broccoli raab at this time. Infected leaves contain numerous angular shaped tan lesions. Avoid working in fields while the foliage is wet, and apply a copper fungicide + maneb every 7 days in the evening when the foliage is dry for control. For all other fields, maintain applications of Bravo or maneb every 7-10 days for protection against **Alternaria leaf spot & downy mildew**.

✓ **Corn (sweet): Virus** is present in some fields at this time. New leaves on infected plants are red, and kernels are now full at the ends of the ears. Continue to scout fields for the presence of **rust**. If the disease is present in plants in the whorl stage or younger, apply a fungicide for control. Older plantings will not benefit from fungicide applications.

✓ **Cucumber: Angular leaf spot, Anthracnose & powdery mildew** are present in fields at this time. For **angular leaf spot** (rectangular lesions with a wet appearance on the underside of the leaf), avoid working in fields while the foliage is wet, and apply a copper fungicide + mancozeb. For **anthracnose** (circular lesions with a dark brown border and the center of the lesion generally falls out), apply Bravo + Benlate or Topsin M every 7 days for control. For **powdery mildew**, apply Bravo + Nova alternated with Quadris every 7 days for control.

✓ **Eggplant: Phomopsis & Phytophthora fruit rots** are present at this time. With **Phomopsis fruit rot** a large brown lesion with black specks in the center is present. **Phytophthora fruit rot** is characterized by large brown lesions that are covered with appressed white fungal growth. Apply a copper fungicide + maneb with a spreader sticker every 7-10 days for control.

✓ **Green (Mustard, Turnip):** Apply Ridomil Gold 4E as a soil surface application after planting for control of **damping-off** & early season control of **downy mildew**.

✓ **Leek:** Maintain applications of Bravo every 10 days for control of **purple blotch**.

✓ **Lettuce:** Beginning one week after thinning, apply Ronilan or Rovral as a directed spray to the base of the plant and surrounding soil for control of **drop**. Rovral will also provide control of **bottom rot**.

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

✓ **Pumpkin & winter squash: Downy mildew** is now present in fields. Numerous, angular shaped lesions are clustered over the leaf and infected leaves quickly turn necrotic. In a matter of 3-4 days the majority of leaves die and hang from the end of the petiole. Maintain applications of Bravo + Nova + a copper fungicide alternated with Quadris + a copper fungicide for control of **downy mildew & other leaf & fruit diseases**.

✓ **Squash (summer):** Maintain applications of Ridomil Gold Bravo or Flouronil + a copper fungicide with Quadris + a copper fungicide for control of **downy & powdery mildew, scab & Phytophthora blight**.

✓ **Spinach:** Apply mefenoxam (Ridomil Gold, Ultra Flourish) as a soil surface application shortly after seeding for control of **damping-off** and early season control of **white rust**.

✓ **Tomato: Septoria leaf spot** is present in some fields at this time. Infected leaves contain small circular lesions with black specks in the center. Maintain applications of Bravo alternated with Quadris for control of **foliar & fruit diseases**. □

## Pest Notes

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

✓ **General:** The cool, moist weather is still keeping the **moth** counts in the blacklight and pheromone traps relatively low for this time of the year. The **European corn borer, corn earworm** and **fall armyworm moth** counts are normally highest the second and third week of August, and the **corn earworm** counts generally stay relatively high for several weeks. However, even though the trap counts are low, the **moths** are still present in the area and can deposit egg masses during warm evenings, so the potential for damage is still present. Growers should closely follow the IPM trap count notifications

to determine nightly activity of these pests as the temperature fluctuates from night to night.

**Spider mites** problems have been at a minimum, mostly because of the cool evenings and heavy rainfalls. It is probably too late in the season for a severe **spider mite** infestation to occur and damage plants, even if the weather turns more favorable for insects. After these current storms pass, closely inspect your eggplant, cucurbit, and tomato fields for **spider mite** adults, nymphs, and damage.

Most county agricultural agents report that heavy **aphid** populations were nearly eliminated in areas that had heavy rainfall. The recent, and even continuing rains, have been detrimental to most populations of **spider mites, aphids, and whiteflies**, and the cool weather accompanying the rains prevents a rapid comeback of the population. □

## Weekly Weather Summary

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

Temperatures averaged much below normal. Extremes were 88 at Pemberton on the 16th and 40 degrees at Charlotteburg on the 21st. Weekly rainfall averaged 1.41 inches north, 1.04 inches central, and 1.48 inches south. The heaviest 24 hour total was 2.34 inches at Seabrook on the 14th to the 15th. Estimated soil moisture, in percent of field capacity, this past week averaged 93 percent north, 86 percent central and 84 percent south. Four inch soil temperatures averaged 67 degrees north, 70 degrees central and 71 degrees south.

### Weather Summary For The Week Ending 8 Am Monday 8/21/00

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC	
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP		
BELVIDERE BRIDGE	1.11	30.28	7.44	84	46	66.	-3	1957	-50	83	
CANOE BROOK	1.78	24.53	.55	84	48	66.	-4	2142	126	96	
CHARLOTTEBURG	.79	24.16	-.04	81	40	62.	-5	1583	-10	76	
FLEMINGTON	1.68	25.18	2.05	82	49	66.	-5	2173	105	92	
LONG VALLEY	1.68	25.79	.83	78	47	63.	-5	1765	-23	90	
NEWTON	.00	.00	.00	0	99	0.	0	0	0	0	
FREEHOLD	.98	20.33	-2.20	85	51	67.	-5	2343	139	77	
LONG BRANCH	.71	27.47	4.75	86	55	68.	-4	2127	2	67	
NEW BRUNSWICK	.77	25.09	2.41	85	49	67.	-6	2265	-27	92	
PEMBERTON	1.12	23.49	.49	88	48	68.	-4	2758	510	69	
TOMS RIVER	.89	25.07	1.80	86	53	67.	-4	2266	158	74	
TRENTON	1.78	20.84	-.73	80	49	66.	-7	2329	-67	83	
BRIDGETON	.00	.00	.00	0	99	0.	0	0	0	0	
CAPE MAY COURT HOUSE	.73	22.62	2.53	85	56	69.	-5	2358	284	67	
DOWNSTOWN	1.33	23.56	2.31	85	55	68.	-5	2455	54	70	
GLASSBORO	1.23	23.67	1.46	84	56	69.	-4	2590	211	63	
HAMMONTON	1.70	21.81	-.42	87	52	68.	-5	2374	-8	73	
POMONA	1.56	28.52	8.09	86	54	68.	-4	2311	89	87	
SEABROOK	2.92	24.91	4.54	87	53	68.	-5	2559	145	89	
ATLANTIC CITY MARINA	.88	26.45	6.86	79	57	70.	-3	2368	221	87	
SOUTH HARRISON	1.10	26.83	4.77	85	58	68	NA	2535	NA	NA	
WES KLINE — GDD BASE 40 PINEY HOLLOW											
Last Week	259	(Ending 8/14/00)									
This Week	200	(Ending 8/21/00)									

# Vegetable IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

## Sweet Corn

Adult **European corn borer (ECB)** activity has decreased sharply over the last four days as a result of cool evening temperatures. With the return of night temperatures in the 60°F range, **ECB** trap catches should increase somewhat. Despite lower catches in recent days, this pest should still be considered a threat, and sweet corn plantings should be monitored for feeding.

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

Woodstown	10	Ellisdale	3	Cohansey	2
Little York	4	Elmer	3	Downer	2
Pittstown	4	Mannington	3	Milltown	2
Belvidere	3	Beemerville	2	Phillipsburg	2

Cool temperatures have also resulted in decreased adult **corn earworm (CEW)** catches. Silk spray schedules on sweet corn may be relaxed accordingly as long as cool evening temperatures continue. With warmer nights catches will increase, and tighter silk schedules will be necessary. Be aware of the possibility of large increases of **CEW** in our area if a tropical storm system moves through the Mid-Atlantic States.

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

Millstone	15	Centerton	2	Drakestown	1
Medford	4	Cohansey	2	Indian Mills	1
Wall	4	Farmingdale	2	Jamesburg	1
Cedarville	2	New Egypt	2	Morristown	1

Feeding injury from **fall armyworm (FAW)** has remained steady at low to moderate levels over the last week. Garden State Pest Management reports whorl stage feeding in the 18-20% range in Monmouth and Ocean Counties. This is consistent with feeding found in some Morris and Warren County sweet corn plantings. Late season sweet corn is an attractive host for **FAW**, and should be scouted weekly for signs of feeding. Consider treating if 12% or more plants are infested with **FAW** alone, or in combination with **ECB**.

## General Sweet Corn Spray Schedule

Silking corn:	North	5 - 6 days
	Central	3 - 4 days
	South	3 - 4 days

## Cole Crops

As fall season cole crops emerge or are transplanted, it is important to monitor plantings for the presence of **flea beetles**. These pests can cause considerable damage to young plants. Scout newly

emerged or transplanted fields twice weekly for the presence of **flea beetles** and their damage. Consider treating if flea beetles are found on greater than 50% of plants and damage is present. Warm dry conditions are best for scouting **flea beetles** as they are most active at higher temperatures.

**Imported cabbageworm (ICW)**, **cabbage looper (CL)**, and **diamondback moth (DBM)** larvae may all be present in cole crops at this time. Locally heavy infestations of **DBM** have been found in some southern and central New Jersey cabbage and broccoli fields. Some chemicals are less effective on **DBM**, and crop sanitation is necessary to insure good control. Check the *2000 Commercial Vegetable Production Recommendations* for labeled products, and plow in harvested cole crop residue that is adjacent to younger plantings. The latter practice will remove a food source and breeding site for **DBM**.

## Asparagus

**Common asparagus beetle** adults and larvae were observed in fields in Cumberland County this week. The adults are bluish-black with a red area behind the head, and light yellow square markings on the wings. Scout fields at least once a week for the presence of adults and larvae. Sample 10 randomly selected plants in 5 locations looking for beetle larvae (gray "slugs") and evidence of feeding on the ferns. A suggested treatment threshold is 5-10% plants infested with adults or larvae. Note that infestations may be clumped in a field. While checking fields for the presence of insects, also make sure to check for the presence of **rust**. Weather conditions have been favorable for rust outbreaks. Look for brick red elongated spots (pustules) on the ferns. Control programs need to be initiated at the first sign of disease.

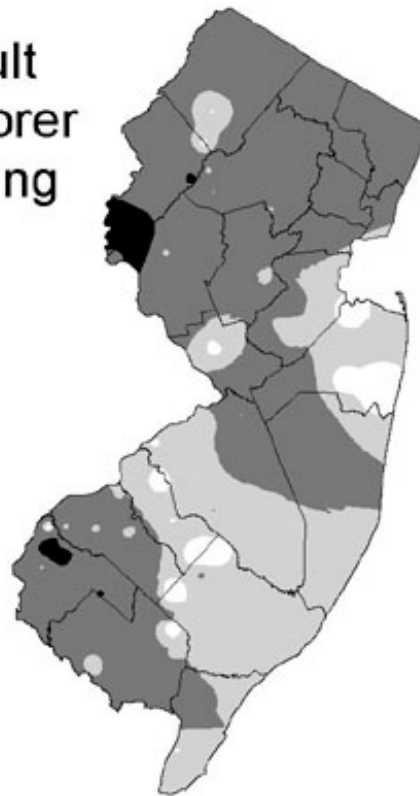
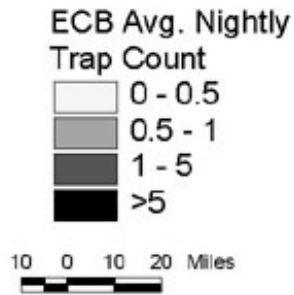
## Peppers

**ECB** and **CEW** adult blacklight trap counts declined significantly in most areas due to the cooler weather this past week. However, **ECB** egg laying and egg hatch were observed in a Salem County field and this pest is still a concern for immature and mature fruit. **FAW** continue to be captured at moderate levels in pheromone traps in Cumberland County, and small **FAW** larvae were observed in fruit this week in Salem and Atlantic Counties. Some **beet armyworm (BAW)** adults are showing up in pheromone traps in the southern counties, but population levels still remain light and only sporadic infestations have been found. To prevent fruit damage, maintain a weekly spray schedule targeting primarily **ECB** and the **armyworms**.

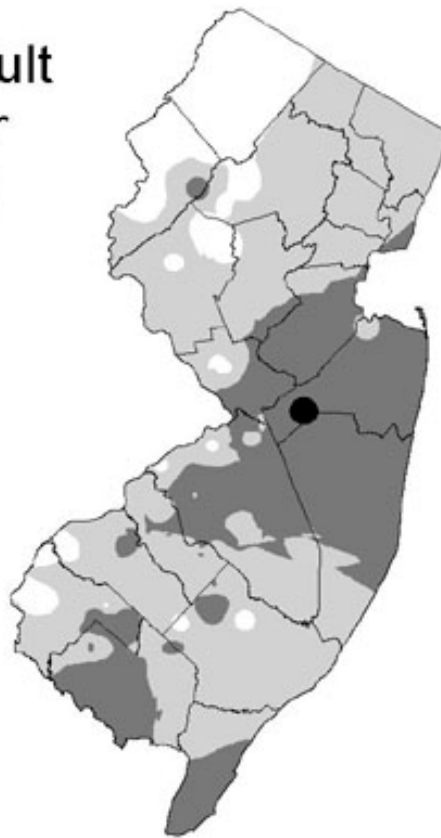
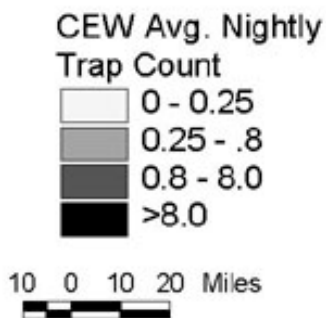
Also make sure to scout fields for the presence of **bacterial leaf spot (BLS)** and **phytophthora**. The wet weather from last week has resulted in greater

SEE IPM ON PAGE 5

## Distribution of Adult European Corn Borer for the Week Ending August 23, 2000



## Distribution of Adult Corn Earworm for the Week Ending August 23, 2000



### IPM FROM PAGE 4

presence of these two diseases. If **BLS** is observed, try to avoid working fields when plants are wet and make sure to maintain a weekly control program to reduce the spread. If possible, rogue **phytophthora** infected plants and remove the plastic mulch several feet from the infected areas to help reduce the spread of this disease.

### Tomatoes

Blacklight trap catches of **tomato fruitworm (CEW)** adults remain at below threshold levels (greater than 10 per night) due to the cooler temperatures, and only sporadic feeding damage has been observed in scouted fields. Normally this time of year, high **CEW** populations are occurring as weather patterns bring migratory moths into our area from southern states. The cooler temperatures also help slow the feeding and growth of insects that are present in the field, so generally insecticide programs can be extended. □

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

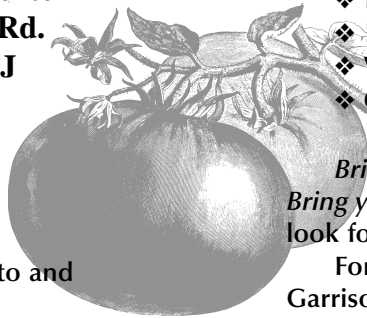
## Vegetable Twilight Meeting

August 21, 2000

Rutgers Agricultural Research  
and Extension Center  
121 Northville Rd.  
Bridgeton, NJ

### See Field Trials

- ❖ Eggplant Variety Trials
- ❖ Pepper Variety Trials
- ❖ Processing Tomato Trials
- ❖ Central Asian Melon, Tomato and Pepper Variety Trials
- ❖ Sweet Corn Variety Trials



Plots open for viewing at 4:00 p.m.  
Meeting to begin at 5:30 p.m.

### Get the Latest Information

- ❖ Disease Updates
- ❖ Insect Updates
- ❖ Weed Control Updates
- ❖ Other Timely Issues

*Bring your plant insect samples to be identified.  
Bring your questions for agents and specialists. We  
look forward to seeing you at the meeting!*

For additional information contact Stephen A. Garrison, Specialist in Vegetable Crops at Rutgers Agricultural Research and Extension Center at (856) 455-3100.

## New RCE Factsheets on Biosolids and Others of Interest

A new series of factsheets on Land Application of Sewage Sludge (Biosolids) is now available from Rutgers Cooperative Extension (see information below). For further information on the subject of Biosolids, contact your county agricultural agent.

The following is a list of the new factsheets:

- FS951 - Land Application of Sewage Sludge (Biosolids) #1: Questions to Ask Before Considering Application on Farmland
- FS952 - Land Application of Sewage Sludge (Biosolids) #2: Regulations and Guidelines
- FS953 - Land Application of Sewage Sludge (Biosolids) #3: Different Types of Sewage Sludge
- FS954 - Land Application of Sewage Sludge (Biosolids) #4: Guidelines for Land Application in Agriculture
- FS955 - Land Application of Sewage Sludge (Biosolids) #5: Heavy Metals
- FS956 - Land Application of Sewage Sludge (Biosolids) #6: Soil Amendments and Heavy Metals
- FS957 - Land Application of Sewage Sludge (Biosolids) #7: Organic Contaminants
- FS958 - Land Application of Sewage Sludge (Biosolids) #8: Pathogens

In addition, Rutgers Cooperative Extension (RCE) Publications Distribution has many other factsheets available (see sample titles on page 3). Many of the publications (including the Biosolids series) appear in their entirety on our web site:

[www.rce.rutgers.edu](http://www.rce.rutgers.edu) with downloading capabilities. For a hard copy contact your County Extension office listed on the back of this newsletter (or in your local phone directory) or call the Publications Distribution office at (732) 932-9762; fax order to: (732) 932-5023; or mail your order to: RCE Publications Distribution, 57 Dudley Road, Cook College, New Brunswick, NJ 08901-8520.

Here are some additional titles of interest:

- FS155 – Laboratories for Soil Testing and Plant Analysis
- FS683 – Organic Certification of Agricultural Products
- FS718 – On-Farm Use of Leaves: Regulations
- FS760 – Presidedress Soil Nitrate Test (PSNT) Recommendations for Sweet Corn
- FS767 – Soil pH Measurement with a Portable Meter
- FS800 – Farmer-to-Consumer Direct-Marketing Operations: Issues and Analysis
- FS804 – Drip Irrigation of Liquid Fish Fertilizer for Vegetable Production
- FS828 – Biological Control of Insect Pests of the Greenhouse
- FS873 – Boron – Needs of Soils and Crops in New Jersey

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