

# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JULY 13, 2005



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## IPM Update

*Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program*

### Sweet Corn

Adult **European corn borer (ECB)** activity is extremely low throughout the state now, with only limited activity in parts of Cumberland, and Salem Counties (see ECB map). Larval injury in sweet corn plantings is still present. Be sure to check all whorl and pretassel stage sweet corn plantings for signs of ECB damage. Check 5 consecutive plants each in 10 random locations. Look for the "shot-hole" type injury on leaves and discolored sections in the emerging tassels. Consider treating when 12% or more of samples plants show fresh feeding signs. Additionally, be sure to treat these early sweet corn plantings as they go to full tassel and first silk. This application will help eliminate remaining ECB larvae before they can re-enter the plant near the developing ear. If local light traps continue to catch ECB adults and silking stage corn is present, consider treating weekly to prevent infestations by larvae that have been deposited on or near the ears themselves. **These silk stage sprays should be applied even if there are no corn earworm (CEW) being caught to generate a schedule.**

The highest average nightly ECB blacklight catches are:

Folsom	2	Elmer	1	Medford	1
Cedarville	1	Fishing Creek	1	Sergeantsville	1
Centerton	1	Green Creek	1	Shirley	1
Cohansey	1	Little York	1	Woodstown	1

CEW adults are still being caught, although numbers have declined over the past week despite a strong southerly system that passed through our area last Friday. This is because there were limited adults available to our south to be transported in the storm. As yet, CEW adult numbers remain low as far south as North Carolina. Southern and mid-Atlantic states should begin to see increased adult activity within the next 2 weeks. In New Jersey, significant CEW increases usually occur around the second week of August. Right now, activity is highest in parts of Atlantic, Burlington, Gloucester, and Mercer Counties (see CEW map). On the map, shaded areas (blue on the web version) indicate a 5-6 day silking spray schedule, while crosshatched areas (green on the web version) warrant a 3-4 day silk spray schedule. The highest average nightly CEW blacklight catches are:

**SEE IPM ON PAGE 2**

**IPM FROM PAGE 1**

Chapel Heights	2	Beckett	1	Milltown	1
Cinnaminson	2	Chester	1	Mullica Hill	1
Folsom	2	Crosswicks	1	Sykesville	1
Allentown	1	Elm	1	Woodstown	1

**General Silking Spray Schedules\*:**

- North - 6-7 days
- Central - 5-6 days
- South - 5-6 days

\*Note: These are general recommendations. Local trap catches may indicate some variation in the frequency of insecticide applications to silking sweet corn.

**Cole Crops**

High infestations of **diamondback moth larvae (DBM)** and **imported cabbage worms (ICW)** and **cabbage looper (CL)** have been found on broccoli, cabbage and similar crops this week. It is important to check fields weekly to prevent serious injury by these pests. When scouting, be sure to include the inner most leaves in the sample as this is often where larvae feed. Consider treating if greater than 20% of heading type cole crops are infested prior to head formation and if greater than 5% are infested when heads are present. For leafy greens, consider treating if 10% or more plants are infested at any time.

**Pumpkins**

Dr. Andy Wyenandt has reported **cucurbit downy mildew (DM)** on cucumbers as well as summer squash and musk melons in the southern counties over the past week. These infections may possibly serve as inoculum for further downy mildew incidents both locally and in cucurbit fields to the north as warm, wet weather dominates. Typical fungicide schedules for the prevention of **powdery mildew** in pumpkins are not necessary until the lesions are found (often after fruit have begun to develop). However, the presence of DM locally would necessitate the initiation of a fungicide program on all cucurbits immediately. As yet, scouted fields in the northern counties have not shown any symptoms of DM. DM symptoms often begin as sharp yellow spots on the upper surface of leaves. Observation of the lower leaf surface will typically show that the lesion is associated with veins. As the infection progresses, dark spores will be apparent on the lower leaf surface during periods of high humidity. Under warm, wet conditions, rapid defoliation of leaves can occur if regular control is not undertaken. For labeled fungicides, consult the *2005 Commercial Vegetable Production Recommendations*.

**Snap Beans**

**Potato leaf hopper (PLH)** adults have been observed on various crops in the northern counties. This pest is most likely throughout the state now, and is capable of causing severe stunting and yield reduction in snap beans. As populations increase in fields, and PLH begins reproducing in the crop, chlorosis and deformation of

leaves may become apparent. If these symptoms appear, crop damage has already occurred. Insecticide applications directed at ECB often control PLH too, but ECB numbers do not currently warrant applications. Therefore, it is critical to monitor for PLH. A sweep net is helpful for PLH detection. Consider treating if adults and nymphs exceed 100 per 20 sweeps prior to bloom, or 250 per 20 sweeps at bloom, or 250+ during pod development. If a sweep net is not available, consider treating if nymphs are found in random samples covering all areas of the field.

**Tomatoes**

As the weather warms, and fruit enlarge and begin to ripen, it is a good idea to begin monitoring for **thrips** populations in the field. These small insects cause what is referred to as "gold fleck" on tomato fruit if they build up in the crop as fruit enlarge. Check fields weekly for increases in thrips populations. Tap flower clusters over an index or similar card. If the small, yellow colored flower thrips shake out onto the card at more than half of the sites inspected, or thrips populations have been increasing, consider treating to minimize the cosmetic feeding injury to fruit.

The period from late June through the first half of July is typically the time when adult **brown stinkbugs** (*Euschistus spp.*) are active and laying eggs on host crops like tomatoes. Within the past week, brown stinkbugs have been observed feeding in sweet corn tassels, so activity is increasing. These insects will feed directly on tomato fruit, causing a pale, diffuse blotch on green fruit that turns bright yellow as the fruit matures. More damaging is the injury caused by the nymphs as they begin to hatch and slowly disperse in the planting. In general, damage is worse during dry periods, because stinkbugs seek more succulent irrigated hosts as non-crop hosts dry up. Adult stinkbugs are difficult to detect in tomatoes because they hide or drop to the ground when approached. The nymphs may be easier to spot, as they remain in a group for some time after egg hatch. Check 5 consecutive plants each in 10 random locations in the planting. Look at two complete leaves and two fruit per plant. If adult stinkbugs or nymphs are found in more than one sample, or if fruit injury is increasing in field samples or in picked baskets, consider applying a labeled insecticide.

Check fields for signs of **two spotted spider mite (TSSM)** feeding. This injury first appears as whitish pin-spots or "stipple" on the surface of older leaves. As the mites increase and continue to feed, the leaves may turn yellow, and the injury will progress up the plant onto younger leaves. Often TSSM infestations first start near field edges where the mites have been feeding on weeds or other hosts like eggplant. If TSSM is localized in a field, spot treatments may be effective. TSSM infestations in some high tunnel plantings are increasing very

**SEE TOMATOES ON PAGE 3**

# Pepper Weevil Follow-up

Joe Ingerson-Mahar, Vegetable IPM Coordinator

Currently there are no known infestations of pepper weevil in the southern part of the state. Several farms do have pepper weevil traps set out and these will continue to be monitored through the summer. The pepper weevil traps are not specific for pepper weevil but attract other species of weevils as well. Each of these weevils needs to be examined to determine whether they are pepper weevils or not.

Pepper weevil adults have a noticeable spur or hook on the first long segment of the leg. While other weevils may be the right size, shape and color if they do not have this spur on the femur they are not pepper weevils.

No pepper grower should be spraying to control pepper weevils unless the weevils have been confirmed to be on the farm. Because of the concern we have for this weevil, traps at different locations will be monitored through the end of the growing season.

Anyone having questions can contact me at 732-932-9802 or by email mahar@aesop.rutgers.edu. □

## TOMATOES FROM PAGE 2

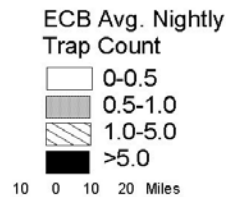
rapidly now. Treatment may be warranted if the infestation is occurring prior to the beginning of harvests. If fruit harvests are well underway when plants show widespread symptoms of TSSM feeding, the mites will likely not cause a reduction in overall yield.

## Peppers

Aphids, TSSM, and thrips are all potential pests of peppers at this time. Monitor fields weekly for the presence of these organisms. Check 2 leaves and 2 fruit per plant on 5 consecutive plants in 10 random locations in the field. Observe the under sides of leaves for aphids and mites. Consider treating if aphid numbers exceed 100 per 100 leaf sample or there are fruit on the plants that are being disfigured by the sticky droppings of the aphids. Consider treating for TSSM if more than 10% of sampled leaves are infested. (Spot treatments may be useful if the infestation is localized). Observe fruit and leaves for the light or silver-colored streaks caused by thrips feeding. Consider treating if thrips are found on 10% or more fruit, or 10% or more plants or fruit are showing signs of fresh feeding.

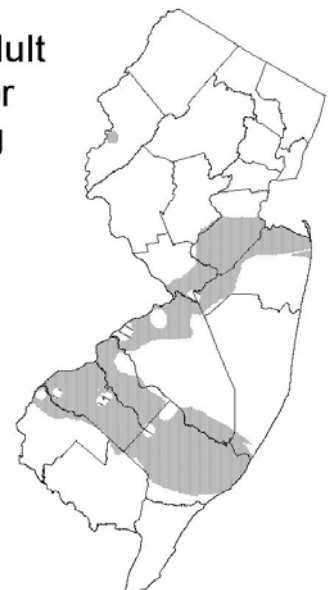
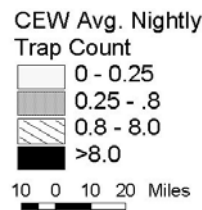
While scouting, note whether significant leaf distortion is occurring on younger parts of any plants. This is often the result of a cyclamen mite infestation. Cyclamen mites are extremely small and are identified in the field by the injury they cause. Distortion near the growing terminals may be accompanied by bud proliferation and russetting of leaves, petioles and developing fruit. If this injury is found, positive identification may be obtained by looking at affected tissue under a microscope. Cyclamen mites are pale, teardrop shaped mites that favor newly formed plant tissue. Miticides used for TSSM will be effective against cyclamen mite.

## Distribution of Adult European Corn Borer for the Week Ending July 13, 2005



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

## Distribution of Adult Corn Earworm for the Week Ending July 13, 2005



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

# Vegetable Disease Update

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology and Wesley Kline, Ph.D., Cumberland County Agricultural Agent

✓ **Chinese Cabbage - Downy Mildew** – Symptoms on the *upper leaf surface* include purple, yellow or brown lesions that may have an angular appearance. ‘Fluffy’ or ‘Downy’ white fungal growth will appear on the *undersides* of lesions during cool, wet weather. Heavy fogs, prolonged dews and cool days and night temperatures favor the development of Downy mildew. Downy mildew may predispose plants to bacterial soft rot infections. Control of Downy mildew begins with allowing good aeration in planting beds, avoiding the use of overhead irrigation, and fungicide applications every 7 to 10 days at first sign of disease or when favorable weather conditions persist. There are a number of fungicides labeled for the control of Downy mildew. Please see page F16 and F17 of *2005 New Jersey Commercial Vegetable Production Recommendations* for specifics on different cole crops.

✓ **Cucurbits – Powdery mildew** – *Powdery mildew is starting in on cucurbits in South Jersey!* Powdery mildew typically occurs from mid-July until the end of the season. Unlike Downy mildew, the diagnostic characteristics of Powdery mildew are *pure white ‘fuzzy’ growth on both the upper and lower leaf surface, petioles and stems*. Symptoms typically begin on older, lower leaves and can develop and spread rapidly under dry, humid conditions. Control of Powdery mildew begins with regular scouting for symptoms and weekly fungicide applications. Fungicide resistance management of the fungus which causes Powdery mildew is critical. Fungicides with a high risk for resistance development such as the strobilurins (Cabrio, Pristine, Flint, Amistar, Tanos, Group 11) should be tank mixed with a protectant fungicide such as Bravo (M4) or Sulfur (M1) and rotated with fungicides of a different chemistry such as Bravo (chlorothalonil, M4 + Nova or Procure (Group 3). Group 3 fungicides are also high-risk and should never be applied alone. Growers need to read and follow restrictions on labels carefully. For more information on control of Powdery mildew and other important diseases of cucurbits please see the *2005 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Cucumber/Pickles – Angular leaf spot** symptoms are distinct and easily diagnosed. Small water-soaked lesions develop on leaves and expand until they are *delimited by larger secondary veins* in leaves resulting in angular lesions. After time these lesions turn brown and infected tissue drops-off resulting in ‘shotholes’. Angular leaf spot can be spread by splashing rain, insects, on the hands of workers and on farm machinery. Working in the field when the foliage is wet favors the spread of the

disease. The disease can also be spread by blowing wind and in irrigation water. Best management of Angular leaf spot begins with clean-seed and planting in fields that has been out of cucurbit production for at least 2 years. Cultivating when foliage and soil are wet and irrigating with pond water should be avoided. There are cucurbit varieties with resistance. Add label rate of fixed copper + mancozeb to fungicide maintenance program and repeat applications every 7 days.

✓ **Cucurbits – Choanephora** – *Weather these pasts few weeks have been very favorable for Choanephora development.* Also known as Choanephora wet rot or blossom end rot is a disease which affects blossoms and young developing fruit. Infected female flowers may turn brown, ‘mushy’ and fall off prior to fruit set. Blossom infection can lead to fruit infection. Young fruit may turn a yellowish-brown with *masses of dense, white fungal growth with black ‘pinpoint’ spores developing on infected fruit.* Long periods of wet weather with excessive rainfall and high relative humidity favor the development and spread of Choanephora fruit rot. Unfortunately, control of Choanephora is difficult due to the constant development of new flowers and fruit, canopy production by the plant, and the ability of the fungus to survive saprophytically.

✓ **Eggplant – Phomopsis blight** – can affect all above ground portions of the plant. Symptoms include well-defined circular lesions on infected leaves with *diagnostic black fruiting bodies* developing within the lesion. If disease progresses, infected leaves may turn yellow and die. Fruit lesions are similar to leaf infections, but lesions may become much larger causing fruit to become soft. Wet weather and high temperatures favor Phomopsis blight development. Control of Phomopsis blight begins with scouting and weekly preventative fungicide applications which may include Amistar (azoxystrobin, 11) 80WDG at 2 to 5 oz/A, or Flint (trifloxystrobin, 11) 50WDG at 2 to 4 oz/A, or Cabrio (pyraclostrobin, 11) 20EG at 8 to 12 oz/A or, maneb (M2) 80WP at 1.5 to 2 lb/A or OLF.

✓ **Pepper – Anthracnose** - Symptoms of fruit infection include sunken, circular spots which develop blackish-tan to orange concentric rings as lesions develop. Lesions on stems and leaves appear as grayish-brown spots with dark margins and can easily be overlooked. Control of Anthracnose begins with using clean-free seed and/or transplants. A three-year crop rotation with non-solanaceous crops is recommended. After the harvest season, pepper fields should be disced and plowed under thoroughly to bury crop debris. At flowering, Maneb 74DF at 1.5 to 3.0 lbs/A should be alternated every 7 to 10 days with Amistar (azoxystrobin, 11) 80 WDG at 2 to 5 oz/A, or Cabrio (pyraclostrobin, 11) 20 EG at 8 to 12 oz/A, or Flint (trifloxystrobin, 11) 50 WDG at 3 to 4 oz/A. For more information on control please see the *2005 New Jersey Commercial Vegetable Production Recommendations*.

SEE DISEASE UPDATE ON PAGE 5

**DISEASE UPDATE FROM PAGE 4**

✓ **Peppers – Phytophthora blight** - To control the crown rot phase apply mefenoxam (1 pt Ridomil Gold 4E/A or 1 qt Ultra Flourish 2E/A) through the drip system or in a 12-16 inch band over the row at 30-day intervals after transplanting for two applications. Additionally, as fruiting starts plants will become susceptible to the *fruit rot phase*, especially with warm and moist weather conditions. Protect the upper portion of the plant with fixed copper sprays or Ridomil Gold Copper sprays. Make 3 to 4 applications at a 10-14 day intervals. Do not apply the last application of mefenoxam through the drip if foliar applications of Ridomil Gold Cooper have been started. See page F70 of the *2005 Commercial Vegetable Production Recommendations* for more details.

Potato – Late blight – **Late blight has been reported on Potato in Cumberland County. The following fungicides should be used if Late blight has been detected in region (NJ, PA, NY) and if only protectant fungicides have been used prior to disease occurrence:**

Amistar, Quadris (azoxystrobin, 11) at 2 to 4 oz 80WDG/A or OLF, or

Acrobat (dimethomorph, 15) at 4.0 to 6.4 oz 50WP/A, or

Curzate (cymoxanil, 27) at 3.33 oz 60DF/A (Use only in combination with a protectant fungicide; i.e. chlorothalonil or mancozeb.), or

Gavel (zoxamide + mancozeb, 22 + M2) at 1.5 to 2 lb 75DF/A, or

Headline (pyraclostrobin, 11) at 6 to 9 oz 2.1F/A, or

Omega (fluazinam, 29) at 5.5 fl oz. 500F/A, or Previcur Flex (propamocarb HCL, 28) at 0.7-0.9 to 1.2 pt 6F/A.

Rates listed in order for low-medium-high disease risk situations. Use only in combination with a protectant fungicide; e.g., chlorothalonil or mancozeb) or

Tanos (famoxadone + cymoxanil, 11 + 27) at 8 oz 50W/A.

Use only in combination with a protectant fungicide; e.g., chlorothalonil or mancozeb

The following protectant fungicides should be applied early in the season prior to the occurrence of any disease in the region according to calendar and/or accumulated DSV's:

Bravo, Echo, Equus(chlorothalonil, M4) at 1.0 to 1.5 pt 6F/A or OLF, or

Dithane, Manex II, Manzate, Penncozeb, mancozebs, M2) at 1.5 to 2.0 lb 75DF/A or OLF.

(Note. DO NOT apply more than a total of 15 pounds per acre per crop), or

Polyram (metiram, M3) at 2 lb 80DF/A or OLF.

(Note. DO NOT apply more than a total of 15 pounds per acre per crop).

✓ **Tomato - Early Blight and Septoria leaf spot -**

Apply the following fungicides on a 7-day schedule or

according to Tom-Cast advised sprays using the alternation pattern described below to delay the potential development of resistant to FRAC Group 11 fungicides.

Bravo, Echo, Equus, chlorothalonil, M4) at 2 to 3 pt 6F/A or OLF (also for gray leaf spot, black mold and soil rot), or

mancozeb (Dithane, Manex II, Manzate, Penncozeb, M2) at 3 lb 80WP/A or OLF (also for gray leaf spot and leaf mold)

Alternate one of the above fungicides with one of the following:

Amistar, Quadris (azoxystrobin, 11) at 1.6 to 2.0 oz 80WDG/A or OLF (Also for buckeye rot and black mold. Do not apply near apples, see label for details.), or

Cabrio (pyraclostrobin, 11) at 8 to 12 oz 20EG/A, or Endura (boscalid, 7) at 2.5 to 3.5 oz 70W/A, or Flint (triflozystrobin, 11) at 4 oz 50 WDG/A, (Do not apply near Concord Grapes.) or

Tanos (famoxadone + cymoxanil, 11 + 27) at 8 oz 50W/A + protectant fungicide (also for buckeye rot suppression and gray leaf spot).

✓ **Tomato – Late blight** - *There have been no confirmed cases of Late blight on tomato in our region to date.* Apply one of the following *protectant fungicides* and repeat every 7 days or *follow a disease forecasting system to schedule fungicide applications:*

Bravo, Echo, Equus, chlorothalonil, M4) at 1 to 3 pt 6F/A or OLF, or

Gavel (zoxamide + mancozeb, M2 + 22) at 1.5 to 2 lb 75DF/A, or

mancozeb (Dithane, Manex II, Manzate, Penncozeb, M2) at 3 lb 80WP/A or OLF.

Once late blight is detected in the area, switch to one of the following translaminar fungicides which can move into and through leaves:

Acrobat (dimethomorph, 15) at 6.4 oz 50WP/A *plus* a protectant fungicide, or

Previcur Flex (propamocarb HCL, 28) at 1.5 pt 6F/A *plus* a protectant fungicide, or

Tanos (famoxadone + cymoxanil, 11 + 27) at 8 oz 50W/A *plus* a protectant fungicide.

Return to the use of protectant fungicides when conditions no longer favor the development of late blight.

✓ **Tomato – Bacterial Canker** – Diagnostic symptoms of Bacterial canker include marginal leaf necrosis. The first symptoms of Bacterial canker include brownish-black lesions along the margins of infected leaves. Lesions become dry after a time and leaves become 'ragged' looking. Bacterial canker can easily spread through the field via staking, tying and pruning. Do not work (i.e. tie, stake or prune) when tomato foliage is wet. Fields or blocks of tomatoes showing symptoms should not be worked in prior to other fields. Bacterial canker

**SEE BACTERIAL CANKER ON PAGE 6**

## Vegetable Disease of the Week

Andy Wyenandt, Ph.D., Specialist in  
Vegetable Pathology



*Choanephora* infecting yellow summer squash.



*Powdery mildew* lesions on cucurbit.



*Buckeye rot* of tomato.

## Disease Notes

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology

### Downy mildew found on summer squash in southern New Jersey.

Downy mildew has now been confirmed on summer squash (zucchini and melon) in southern New Jersey. **This is the first report of Downy mildew on cucurbits other than cucumber.** Therefore, all cucurbit crops should be considered susceptible to Downy mildew. Control of Downy mildew begins with a preventative fungicide maintenance program. There are a number of fungicides labeled for control of Downy mildew and many will help control of important diseases in cucurbits. For information on control of Downy mildew and other important diseases and specific fungicide rates please see the *2005 New Jersey Commercial Vegetable Production Recommendations Guide*.

### Late blight reported on potato can infect tomato.

The Late blight reported on potato in Cumberland County on July 1<sup>st</sup> can also infect tomato. Therefore, as a precaution, tomato growers should also include fungicides for Late blight control in their programs as long as conditions favoring Late blight development are present. For information on control of Late blight and specific fungicide rates please see the *2005 New Jersey Commercial Vegetable Production Recommendations Guide*. □

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#### BACTERIAL CANKER FROM PAGE 5

can be spread between fields via hands, clothing and equipment. As fruit develop, white 'bird's eye' spots may develop on green fruit making it unfit for market. Fungicides used to control Bacterial spot and speck may help to suppress spread of Bacterial canker.

✓ **Tomato – Anthracnose** – Symptoms of Anthracnose are easily diagnosed. Symptoms on ripe fruit appear as water-soaked circular lesions that often have a lighter colored tan center. Black fruiting bodies are often visible in the center of Anthracnose lesions. Control of Anthracnose begins with preventative fungicide applications. Fungicides labeled for other important foliar and fruit diseases of tomato will help control Anthracnose. If fruit-ripening agent has been used, additional fungicide applications may be necessary to help control Anthracnose. For more information on control please see the *2005 New Jersey Commercial Vegetable Production Recommendations*.

✓ **Tomato – Buckeye Rot** – Wet weather and wet soils favor the development of Buckeye rot. Symptoms of Buckeye Rot on green fruit include brownish-tan lesions that have a *definitive concentric appearance*. As lesions form the fruit will begin to soften up, this is quite different than Late blight which will cause a dark brownish/black lesion with the fruit remaining somewhat firm. Unlike Late blight, Buckeye rot won't attack the foliage. For more information on control please see the *2005 New Jersey Commercial Vegetable Production Recommendations*. □

# A Few Soybean Rust Spores Found as Far North as Kentucky

*Edited by Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology. Source: C.O.R.N. newsletter, July 11-19, 2005, Ohio State University, <http://agcrops.osu.edu>.*

In her recent agronomic newsletter article, Dr. Anne Dorrance, Department of Plant Pathology, Ohio State University stated her bottom-line reaction to the news of rust-like spores being found in Kentucky: "Ten spores is not enough." The big news last week was that 10 spores, which look identical to soybean rust, were identified in a spore trap in Kentucky; two spores were found in Tennessee. **NO SOYBEAN RUST HAS BEEN IDENTIFIED IN ANY GULF STATES** – except a sentinel plot in Baldwin County, Ala. These spore traps were established throughout the south, courtesy of Syngenta, to assist in monitoring. When spores are found, comparisons are made with the environment that occurred during that week. From the Kentucky reports,

the environment was not very favorable. Scouting will intensify over the next two weeks in Kentucky to determine if any rust was established. The inoculum in the United States is very, very, very low. With these hurricanes, the inoculum is being dispersed over a wide, wide area. Hurricane Ivan brought spores from northern South America — it took from mid-September to early November before this rust could be detected. It appears at this point, based on inoculum levels in Alabama — that Dennis will carry even lower levels of inoculum. We will be monitoring fields the last week of July and first two weeks of August – to see if Dennis brought us any rust. It takes five to 10 days for lesions to form, but 10 days for spores to develop on these leaves. If it continues to stay hot and dry – it may take even longer. One of the challenges of this past winter is that we only had information from Brazil to base guidelines and predictions. It is apparent now that one of the big differences between the two areas is the total inoculum. Brazil especially has very high levels of inoculum from a number of sources. Here in the United States this year (2005), this really has not developed. It's like starting a camp fire: you need a lot of small sticks and paper to get the fire going, we've only got a twig. □

## Weekly Weather Summary

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

Temperatures averaged near normal, averaging 71 degrees north, 73 degrees central and 73 degrees south. Extremes were 93 degrees at Long Branch on the 10th, and 52 degrees at Charlotteburg on the 5th. Weekly rainfall averaged 2.21 inches north, 1.86 inches central, and 2.24 inches south. The heaviest 24 hour total reported was 2.13 inches at Cape May on the 8th to 9th. Estimated soil moisture, in percent of field capacity, this past week averaged 89 percent north, 88 percent central and 86 percent south. Four inch soil temperatures averaged 72 degrees north, 73 degrees central and 74 degrees south.

**Weather Summary for the Week Ending 8 am Monday 7/11/05**

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	2.24	14.63	-2.15	91	58	72.	0	1180	99	93
CANOE BROOK	1.85	16.72	-1.17	92	59	73.	0	1367	289	94
CHARLOTTEBURG	2.62	19.61	1.53	87	52	68.	-1	1100	239	96
FLEMINGTON	2.20	20.73	3.53	89	59	72.	-1	1273	159	97
NEWTON	2.15	16.06	-.36	89	57	71.	1	1199	246	96
FREEHOLD	1.61	19.75	2.97	90	60	73.	-1	1287	74	96
LONG BRANCH*	1.46	19.08	2.32	93	62	74.	1	1255	116	83
NEW BRUNSWICK	2.67	19.55	3.02	92	59	74.	0	1342	54	96
TOMS RIVER	1.55	19.59	2.69	92	60	73.	-1	1201	53	83
TRENTON	2.00	19.76	4.17	90	59	73.	-2	1349	7	84
CAPE MAY COURT HOUSE	2.38	17.01	2.19	87	57	71.	-3	1022	-205	86
DOWNSTOWN	2.00	15.74	.41	89	59	73.	-2	1259	-98	86
GLASSBORO	2.38	17.06	.63	91	62	75.	0	1464	128	85
HAMMONTON	2.32	16.84	.64	91	61	74.	-1	1318	-12	83
POMONA	1.63	17.34	2.71	90	61	74.	0	1219	-9	83
SEABROOK	2.71	17.50	2.71	88	61	74.	-1	1483	118	92
SOUTH HARRISON	2.69	18.07	1.55	89	61	73.	NA	1383	NA	NA

\*SOME CUMULATIVE VALUES ESTIMATED DUE TO MISSING PAST DATA

WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week\* 249 (Ending 7/4/05) This Week 230 (Ending 7/11/05)

\* February total base 40 equals 32 units

MILLTOWN, NJ 08850  
PERMIT #576  
POSTAGE PAID  
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