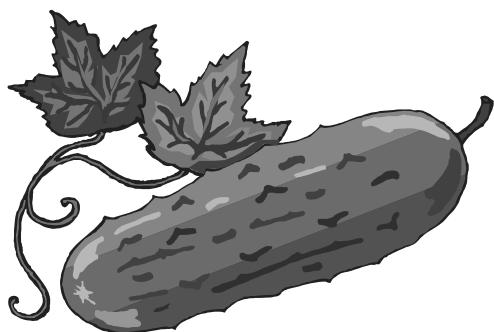


PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JULY 6, 2005



Downy Mildew Found on Cucumber in Three Counties in Southern NJ

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

Downy mildew has now been confirmed on cucumbers in three counties (Atlantic, Cumberland and Gloucester) in southern New Jersey and should be considered widespread in New Jersey. Thus far, the Downy mildew pathovar seems to be extremely aggressive on cucumber versus other cucurbit crops. However, this may change as the season progresses and as more Downy mildew hits our region. *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. *Growers who have not begun weekly maintenance programs should do so in cucurbit crops.*

The best Downy mildew control (NCSU recommends) is Tanos (cymoxanil, 27) plus a protectant (i.e. Bravo) rotated with Previcur Flex (propamocarb, 28) plus a mancozeb (M2). Curzate has the same a.i. as Tanos. Gavel (zoxamide + mancozeb, 22 + M2) is also labeled for Downy mildew control in all cucurbits, except pumpkin, and should be tank-mixed with either Acrobat (dimethomorph, 15) or Curzate. Growers should avoid excessive use of the strobilurins (Cabrio, Pristine, Amistar, Flint, Group 11) for Downy mildew control only since resistance may come into question. If Downy mildew is suspected in the immediate area, or symptoms show up, fungicide maintenance programs should immediately switch to Tanos/Bravo alternated with Previcur Flex/Mancozeb or Gavel/Curzate on a short schedule (3 to 5 days) as a precautionary and/or until *sporulation is controlled*. Once **Powdery mildew** season begins, and Downy mildew is not present, judiciously use a strobilurin fungicide (Amistar or Flint, 11) plus a protectant fungicide (M) alternated with Nova or Procure (3) + a protectant fungicide. If Downy mildew and Powdery mildew are present, growers should focus on Downy mildew control first, then PM control. Remember Cabrio and Pristine (both Group 11) are labeled for both Downy mildew and Powdery mildew, but there is a good chance resistance may be present or quickly develop to these fungicides.

Please make sure to keep an eye on strobilurin (Group 11) efficacy. Should you suspect that Group 11 efficacy is failing or not giving adequate control of Downy or Powdery mildew please contact your county agent. For information on control of Downy and Powdery mildew and specific fungicide rates please see the *2005 New Jersey Commercial Vegetable Production Recommendations Guide*. □

INSIDE

Downy Mildew Found on Cucumber in Three Counties in Southern NJ	1
Diagnosing Important Summer Diseases in Asparagus	2
Vegetable Diseases Update	2
Vegetable Disease of the Week	4
Pest Notes	5
Disease Briefs	5
IPM Update	6
Weekly Weather Summary	7

Diagnosing Important Summer Diseases in Asparagus

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

Asparagus growers should consider scouting their fields for summer foliar disease development. Two important pathogens growers need to scout for on a regular basis are **Purple spot** and **Rust**. Both pathogens are easily diagnosed by the characteristic symptoms they produce on infected plants. Purple spot lesions can appear on the spears during the harvest season and reduce quality, as well as on fern growth later in the summer. Characteristic symptoms of Purple spot include small (1 to 2 mm) slightly, sunken elliptical reddish-purple lesions on spears and ferns. Damage to ferns can cause premature defoliation which will reduce carbohydrate flow and reduce yield for the next growing season. Chopping the fern and incorporating the debris in the fall after the fern senesces can help destroy overwintering sources of the fungus, however these practices may also lead to Fusarium infection. Once fernstalks are full-size, fungicide applications (chlorothalonil) should be repeated every two to four weeks until frost.

Rust is another important pathogen of asparagus. Rust can easily be diagnosed in the field early in the season by the cream-colored oval lesions (6 to 19 mm) it produces. A few weeks later these lesions will appear reddish-brown. These reddish-brown lesions can produce spores which can cause more infections leading to further disease development. Control of Rust is extremely important and necessary in one and two year old beds, even with Rust resistant varieties. Growers need to begin scouting for symptom development in late-June in non-cutting beds and apply fungicides if necessary. In cutting beds, fungicide applications typically begin in mid-August. Fungicide applications of Chlorothalonil, mancozeb or myclobutanil rotated on a 7 to 10 day schedule will help control rust.

Although Purple spot and Rust are easily diagnosable in the field, growers who don't scout on a regular basis may find themselves trying to play catch up with both diseases. □

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 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** - 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,

SEE DISEASE UPDATE ON PAGE 3

DISEASE UPDATE FROM PAGE 2

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*.

✓ **Peppers – Phytophthora blight** is beginning to appear in pepper fields. 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 – Black Leg** – The aerial phase of Black leg, also known as aerial stem rot, has shown up over the past few weeks. Black leg is caused by *Erwinia* spp. which also cause 'soft rots'. The bacteria which lead to the aerial phase of Blackleg are soil-borne (originate from old crop debris) and spread by rainfall, overhead irrigation and wind. The aerial phase of Blackleg does not originate from decaying seed pieces. The bacterium can enter the plant through wounds created by cultivation or through stems damaged by blowing wind, sand or hail. Dense canopies, warm weather and prolonged periods of leaf wetness favor the spread of aerial Blackleg. Fortunately, the disease rarely extends below ground and only causes

dieback of stems over time. Symptoms of the aerial phase of Blackleg first appear as an irregular, water-soaked 'green' decay on stems that turns light-brown to black over time. Hot, dry weather will cause infected areas to dry out and become brittle. To help suppress aerial Blackleg, avoid excessive overhead irrigation if possible. Do any cultivating when plants are dry, cultivating in the presence of dew or wet plants may help to spread the bacterium around.

✓ **Potato - Leak (*Pythium*) and Pink Rot (*Phytophthora*)** - Leak is a disease that usually enters the tubers through bruises occurring in conjunction with the harvesting of immature tubers during hot weather. Pink rot generally occurs in poorly drained areas. Apply one of the following fungicides with as much gallonage as possible. Make three applications of one of the following fungicides. The first application should be made at nickel size tubers. The second and third applications should occur 14 and 28 days later. Be sure to get some coverage of the soil surrounding plants for root uptake to occur.

Ridomil Gold Bravo, Fluoronil (mefenoxam + chlorothalonil, 4 + M4) at 2 lb 76WP/A, or Ridomil Gold/Copper (mefenoxam + copper, 4 + M1) at 2 lb 70WP/A, or Ridomil Gold MZ(mefenoxam + mancozeb, 4 + M2) at 2.5 lb 68WP/A

An alternative application technique is to apply one of the following in a 6- to 8-inch band directly over the seed-piece prior to row closure.

Platinum Ridomil Gold (mefenoxam, 4) at 2.2 fl oz 1.6E/1000 feet of row, or

Ridomil Gold (mefenoxam, 4) at 0.42 fl oz 4E/1,000 feet of row, or

Ultra Flourish (mefenoxam, 4) at 0.84 fl oz 2E/1,000 feet of row.

✓ **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

SEE POTATO ON PAGE 4

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, mancozeb, 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/Pepper - Blossom End Rot** – Tomato and pepper fields may begin showing symptoms of Blossom end rot due to the prolonged, hot dry conditions and recent rains. During hot, dry periods keep soil moisture levels constant with properly timed irrigation. Calcium deficiency which is involved with Blossom end rot is taken up by roots through “mass flow” meaning calcium it is taken up by the plant with soil water through small root hairs. Prolonged dry weather followed by heavy rains can create situations in which the flow of calcium into the plant can become unbalanced resulting in fruit developing the disorder.

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 (famoxodone + 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

Vegetable Disease of the Week



Anthracnose fruit rot of Pepper.

protectant fungicide, or

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

Tanos (famoxodone + 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 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 – Bacterial spot and speck** – Symptoms of spot and speck include small, water-soaked spots with a ‘greasy’ appearance on infected leaves. These lesions will expand and will often form yellow ‘halos’ at the margins. Lesions may spread and form large, irregular necrotic areas on leaves. On mature plants infections are most evident on older leaves. Bacterial spot and speck will both *infect green fruit*. Bacterial spot development is favored by high moisture, relative humidity and warm temperatures (75 to 90 degrees) and bacterial speck is favored by cooler, moist conditions (65 to 75 degrees). Bacterial spot produces slightly raised water-soaked spots that with age become ‘scabby’ and be 1/4” in diameter. Bacterial speck produces much smaller lesions (1/16”) that are black and slightly sunken. Control of both spot and speck begins with proper crop rotation (2-3 years without tomatoes or peppers) and in the greenhouse with clean seed and/or transplants and proper greenhouse sanitation. Culturally, Avoid overhead irrigation and *do not work* in fields when plant surfaces are wet. Control of spot and speck should begin in the greenhouse and carry into the field soon after transplanting with a weekly spray program, especially if either has been a problem in the past. □

Pest Notes

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

✓ **Cole crops:** Southern states report heavy pressure from all of the lepidopteran “worm” pests that attack cole crops, leafy greens, and other crops in New Jersey pests include a mix of **imported cabbageworms, cabbage loopers** and **diamondback moth larvae**. The southern states report that the pest levels are well over threshold, and several sprays have been required. In New Jersey, we have had various population levels of imported cabbageworms, but normally the cabbage loopers and diamondback moth larvae are found in late July, early August. The coastal storms and wind fronts help bring these pests up along the coast to our area, and based on reports from the southern states, we can expect populations of diamondback moth and cabbage loopers to show up at any time. Monitor the cole crop and leafy greens, mustard, etc. fields to detect these pests before the population increases beyond threshold (see the *2005 NJ Commercial Vegetable Production Recommendations* for more information on what and when to spray).

✓ **Cucurbits: Squash bugs** should start appearing in the fields at this time. Look for the adults and clusters of small, oval, reddish brown/bronze colored eggs on the undersides of leaves. Pesticide sprays should be targeted at the nymphs, so apply first application about 7-10 days after egg masses appear. Thorough coverage of the foliage is important for effective squash bug control.

✓ **Pepper: European corn borers** are not a problem yet, but **aphids** are starting to increase in many crops, including leafy greens and alfalfa. Closely monitor the peppers for development of aphid populations, and if needed, consider the use of Actara, Assail, Fulfill, Lannate, MSR, Provado, Thionex, or Vydate. Orthene is a very effective material for aphids, but because of the use limitations in pepper, it is recommended growers use Orthene for the first two corn borer sprays and use something different for aphids at this time.

✓ **Potato:** Although some potato fields have **corn borer** damage in the stems, the blackening of the vines at the base is NOT related to corn borer. A bacteria, *Erwinia*, is the culprit, often referred to as **aerial black leg**, or **aerial stem rot**, of potato. However, because much of the damage caused by corn borer appears at the base of the plant, it is often assumed that these are one-and-the-same, or at least related, and they are not.

✓ **Leafhoppers** are building up very rapidly in potatoes, especially where the at-plant insecticide is no longer effective. Monitor closely for buildup of these pests, and do not let the leafhopper population explode in the potato fields, as they can be very damaging, and the plants will not recover from leafhopper damage. Use Baythroid, Asana, dimethoate, Guthion, Imidan, Lannate, Thionex, or Vydate for leafhopper control. Remember that Thionex and Vydate will also result in effective **Colorado potato beetle** control as well.

✓ **Tomatoes: Stink bugs** are starting to appear in tomatoes. An effective threshold for stinkbugs in tomato does not exist at this time, but if damage or number of bugs is increasing, then consider using a spray to protect the tomato fruit. Effective materials include Actara, Baythroid, Danitol, Monitor, Mustang MAX, Warrior, and Thionex. Because the second generation **Colorado potato beetle** is in the field, it is suggested that tomato growers avoid the use of foliar sprays of any neonicotinoid, such as Provado, Assail, or Actara, on eggplant, tomato and potato to reduce the potential of the development of insecticide resistance to these materials by the potato beetle. NOTE: the use of Monitor is permitted by a Special Local Needs label in NJ, or 24-C label, of which a copy MUST be in the possession of applicator at time of use. □

Disease Briefs

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

Late blight reported on potato in Cumberland County.

Late blight has been reported on potato in Cumberland County. This is the first report of Late blight on potato or tomato this year. Potato growers who have not switched to a fungicide program which includes Late blight control should do so. At this time it is unknown if the Late blight found in potato will infect tomato. Therefore, as a precaution, tomato growers should also include fungicides for Late blight control in their programs. Please see Vegetable Disease Update for Late blight control measures for potato and tomato.

Cucurbit Downy mildew reported in Maryland and Delaware.

Dr. Kate Everts, Plant Pathologist, University of Maryland, reports that Downy mildew has been found in cucumber fields in Dorchester County, MD (Hurlock area) and Sussex County DE (Seaford area). This is the first report of Cucurbit Downy mildew in the Mid-Atlantic region outside of New Jersey.

Asian Soybean rust now in three states in the South.

As of June 30th, Asian Soybean Rust (ASR) has been found in Alabama, Georgia and Florida. ASR has been found on kudzu in 6 counties, as well as in soybean sentinel plots in Florida, on volunteer soybeans in Georgia, and on soybean sentinel plots in Alabama. To track the movement of ASR in the United States and for important information on ASR from around the country please visit the USDA website: <http://www.sbrusa.net/> or for information on ASR management in New Jersey please visit: <http://www.rcre.rutgers.edu/soybeanrust>. □

IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

Adult **European corn borer (ECB)** activity has declined to nearly nothing throughout the state over the past week with only limited activity in parts of Cape May, Cumberland, Hunterdon, Monmouth and Ocean 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:

Allamuchy	1	Eldora	1	Pedricktown	1
Allentown	1	Hackettstown	1	Phillipsburg	1
Cedarville	1	Little York	1	Sergeantsville	1
Cranbury	1	New Egypt	1	Woodstown	1

CEW adults are being caught with some consistency now throughout the southern half of the state (see CEW map). This population is fairly light, but does pose a local threat to silking sweet corn. 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:

Downer	3	Allentown	1	Mullica Hill	1
Cinnaminson	2	Beckett	1	Pedricktown	1
Folsom	2	Chapel Heights	1	Sewell	1
Hammonton	2	Cranbury	1	Tabernacle	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

Increasing numbers of **diamondback moth larvae (DBM)** and **imported cabbage worms (ICW)** 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 *more occurrences of cucurbit downy mildew* on cucumbers in the southern counties over the past two weeks. 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 downy mildew locally would necessitate the initiation of a fungicide program on all cucurbits immediately. Downy mildew 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.

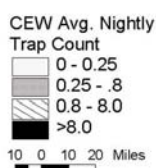
The period from late June through the first half of July is typically the time when adult **brown stinkbugs**

SEE IPM ON PAGE 7

(*Euschistus spp.*) are active and laying eggs on host crops like tomatoes. These insects will feed directly on 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. 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.

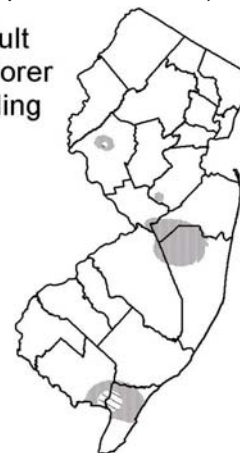
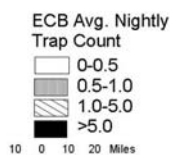
Check fields for signs of **two spotted spider mite (TSSM)** feeding. This injury first appears as whitish pin-spots or "stipple" on the surface of older leaves. As the mites increase and continue to feed, the leaves may turn yellow, and the injury will progress up the plant onto younger leaves. Often 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.

Distribution of Adult Corn Earworm for the Week Ending July 06, 2005



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

Distribution of Adult European Corn Borer for the Week Ending July 06, 2005



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

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal north, near normal central and south, averaging 74 degrees north, 74 degrees central and 75 degrees south. Extremes were 92 degrees at Glassboro on the 30th, and 50 degrees at Charlotteburg on the 3rd. Weekly rainfall averaged 1.77 inches north, 3.76 inches central, and 2.00 inches south. The heaviest 24 hour total reported was 2.22 inches at New Brunswick on the 29th to 30th. Estimated soil moisture, in percent of field capacity, this past week averaged 80 percent north, 95 percent central and 81 percent south. Four inch soil temperatures averaged 75 degrees north, 76 degrees central and 75 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/ 4/ 5

WEATHER STATIONS WEEK	RAINFALL			TEMPERATURE			GDD BASE50		MON %FC	
	TOTAL	DEP		MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	.76	12.39	-3.42	89	56	75.	4	1024	92	88
CANOE BROOK	1.71	14.87	-2.05	90	54	76.	5	1204	281	84
CHARLOTTEBURG	2.01	16.99	-.14	87	50	71.	3	971	242	85
FLEMINGTON	3.39	18.53	2.32	91	54	74.	2	1119	163	90
NEWTON	1.00	13.91	-1.57	88	57	75.	6	1051	238	70
FREEHOLD	2.57	18.14	2.27	89	57	74.	2	1126	75	93
LONG BRANCH*	3.52	17.62	1.74	85	63	73.	1	1087	107	86
NEW BRUNSWICK	4.20	16.88	1.34	91	57	75.	1	1175	55	94
TOMS RIVER	3.00	18.04	2.19	89	59	74.	1	1043	63	87
TRENTON	5.49	17.76	3.21	91	61	76.	2	1186	17	93
CAPE MAY COURT HOUSE	1.88	14.63	.62	81	53	68.	-5	874	-187	70
DOWNSTOWN	2.06	13.74	-.62	90	60	75.	1	1099	-87	85
GLASSBORO	.93	14.68	-.82	92	62	77.	3	1288	123	55
HAMMONTON	2.37	14.52	-.64	90	61	76.	2	1152	-6	84
POMONA	2.72	15.71	1.99	86	61	74.	1	1051	-13	85
SEABROOK	2.06	14.79	.95	89	62	77.	3	1315	122	86
SOUTH HARRISON	1.69	15.38	-.16	89	63	76	NA	1220	NA	NA

*SOME CUMULATIVE VALUES ESTIMATED DUE TO MISSING PAST DATA

WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week* 213 (Ending 6/27/05) This Week 249 (Ending 7/4/05)

* February total base 40 equals 32 units

MILLTOWN, NJ 08850
PERMIT #576
POSTAGE PAID
FIRST CLASS

New Brunswick, N.J. 08901-8551
18 College Farm Road
Rutgers' Cook College
Plant & Pest Advisory
RUTGERS
COOPERATIVE RESEARCH & EXTENSION
NJ AGRICULTURAL EXPERIMENT STATION



PLANT & PEST ADVISORY VEGETABLE CROPS EDITION CONTRIBUTORS

Rutgers Cooperative Research & Extension (RCRE) Specialists

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

George Hamilton, Ph.D., Pest Management

Joseph R. Heckman, Ph.D., Soil Fertility

Bradley A. Majek, Ph.D., Weed Science

Andy Wyenandt, Ph.D., Vegetable Pathology

RCRE 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)

Middlesex, William T. Hlubik (732-745-3443)

Monmouth, Bill Sciarappa, Ph.D. (732-431-7260)

Morris, Peter J. Nitzsche (973-285-8300)

Passaic, Elaine F. Barbour, Agric. Assistant (973-305-5742)

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, Research Project Coordinator II

Newsletter Production

Jack Rabin, Associate Director for Farm Services, NJAES

Cindy Rovins, Agricultural Communications Editor

For back issues, visit our web site at: www.rce.rutgers.edu/pubs/plantandpestadvisory.

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