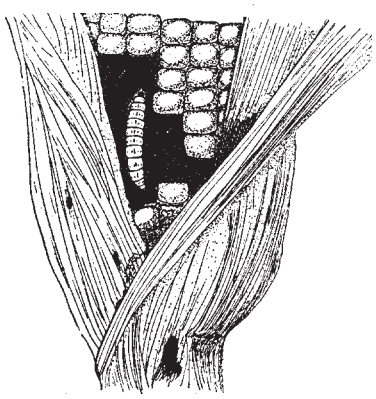
RUTGERS COOPERATIVE RESEARCH & EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION $1.50 JULY 12, 2006



INSIDE

IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

Catches of **European corn borer (ECB)** adults are still very low in most areas, (see ECB map). ECB adult activity should begin to increase within the next two weeks. Over the past week, the highest adult ECB activity has occurred in western Hunterdon County, and on the Salem-Cumberland County border. ECB larval feeding on whorl stage sweet corn is nearly non-existent at this time, with only pre-tassel stage corn having limited residual infestations. Scouting should still be undertaken at least weekly. Check 5 consecutive plants in each of 10 random locations in the planting. Look for the "shot-hole" type feeding on the leaves that indicates larval ECB infestation, or discolored sections in emerging tassels. Consider treating when feeding signs are present on 12% or more of the plants. Where plantings are approaching full tassel/first silk, consider that an insecticide treatment at this stage is very useful in eliminating any ECB larvae that may be moving from the opening tassel down to the area where the ear and stalk meet. The highest nightly ECB catches for the previous week have occurred at:

East Vineland	2	Cohansey	1	Mannington	1
Seeley Lake	2	Elmer	1	Pedricktown	1
Woodstown	2	Jones Island	1	Shirley	1
Blairstown	1	Little York	1	Wall	1

Adult **corn earworm (CEW)** adult catches are fairly low in most areas, but have increased slightly in the southern Burlington County area (see CEW map). This population is capable of causing significant injury to silking sweet corn. Silk spray schedules must be strictly observed to prevent CEW damage. On the CEW map, the shaded area represents a population that translates to a 4-5 day silk spray schedule, and the crosshatched area represents a 3-day spray schedule.

Silking Spray Schedules*:

North – 6-7 days
Central – 5-7 days
South – 3-5 days

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

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The highest nightly CEW catches for the previous week have occurred at:

Cohansey	2	Centerton	1	Medford	1
Elm	2	East Vineland	1	Seeley Lake	1
Elmer	2	Hammonton	1	Shirley	1
Indian Mills	2	Lawrenceville	1	Tabernacle	1

Fall armyworm (FAW) larvae have been observed feeding in whorl stage sweet corn in the central counties. Numbers remain very low, and few plants were affected, but this means we could see an increase in FAW feeding soon. FAW often attack young whorl stage sweet corn, so this must be scouted at least weekly. Look for damage that is initially similar to heavy ECB injury. As the larvae grow, damage becomes more severe, with ragged holes appearing in the whorl and lots of visible caterpillar droppings. This pest can kill small plants if untreated. Consider treating when 12% or more plants are infested with FAW alone or in combination with ECB.

Tomatoes

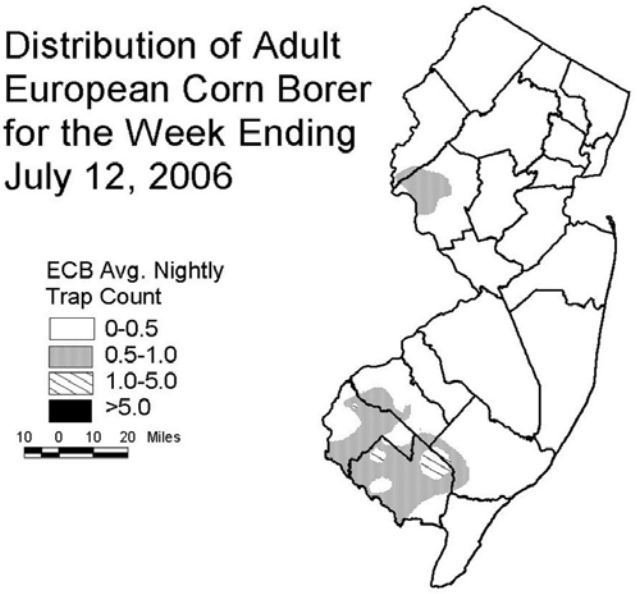
Bacterial infections have worsened in tomatoes recently, following heavy rains of the past few weeks. All are characterized by very dark, often wet looking lesions on leaves of any age. In the case of **bacterial canker**, lesions often start at leaf margins but may also be found on petioles. **Bacterial speck** results in a dark blister-like lesion on infected fruit, while **bacterial spot** causes a more severe dark fruit lesion. Bacterial canker causes a whitish blister referred to as "bird's-eye spot" on fruit. If these symptoms appear in a planting, consider regular applications of copper if this is not already part of the program. Avoid fields when wet. Always work in younger plantings first if activity is planned in multiple plantings. This will prevent the distribution of bacteria from older infected plants to younger ones. The younger the plants are when they are infected, the more likely economic injury is to occur. Consider placing buckets with a 5-10% bleach solution in water at the end of rows when tying or pruning. This will enable workers to dip wands or pruning tools in the solution between rows to limit spread among plants.

Brown stinkbugs are active in many areas now. This is the time of year when adults are present and moving around in search of food and egg laying sites. Tomatoes are a favored host, especially if dry weather reduces the availability of native host plants. Recent wet weather may help keep stinkbugs on non-crop hosts, but now is the time to pay attention to fruit in the field for signs of feeding. Stinkbug feeding on tomatoes first appears as a diffuse whitish blotch on green fruit. The spot changes to bright yellow as the fruit matures. If this feeding is on the increase in the field or in harvested fruit, consider treating to suppress the population.

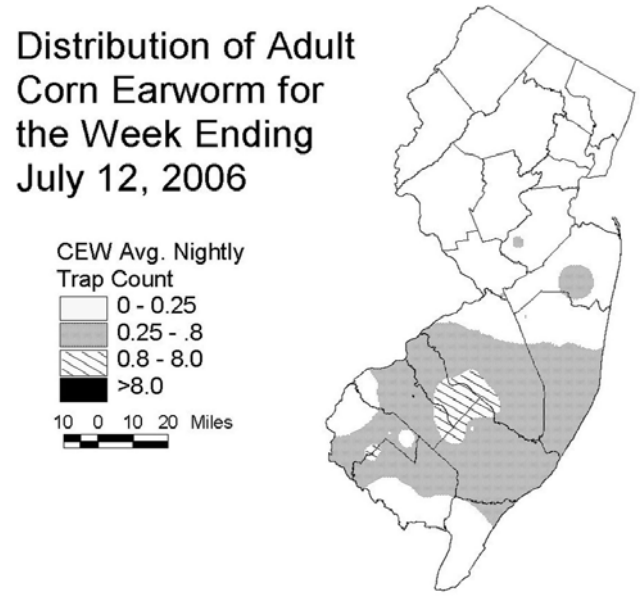
Pumpkins

As pumpkins begin to grow, it is important to check them for **cucumber beetles**. These beetles can cause injury from their feeding as well as transmitting **bacterial wilt** to the young plants. Check 5 consecutive plants each in 10 random locations in the field. If the cucumber beetles (yellow/green with black stripes or spots) are found at 5 or more sites in the field, consider treating to minimize the threat to the crop.

Recent heavy rains have resulted in numerous fields of young pumpkin plants with signs of **Phytophthora crown rot**. Plants are wilting and the stems are decaying near the soil line. If conditions are moist, a white yeast-like growth may be seen on affected plant parts. Saturated soil conditions will increase the incidence of this disease if the organism is present in the soil.



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



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

Corn Earworm: Preliminary Results of Pyrethroid Resistance Tests from PA

Shelby Fleischer, Dave Johnson, Jo Anna Hebberger, Greg Payne, Department of Entomology, Penn State

Reprinted from Maryland Cooperative Extension Newsletter, Summer 2006.

Sweet corn is attacked regularly by three lepidopterans. Two of these, the **corn earworm** and the **fall armyworm**, are primarily immigrants from the south when they appear in Pennsylvania. These two are members of the same insect family, the Noctuidae, which include relatively strong-bodied species that are good flyers. The other species, the **European corn borer**, is a smaller species that overwinters well in our area.

Corn earworm populations in the southern U.S. have shown reductions in susceptibility to pyrethroid insecticides, where they are used to target the same insect species in cotton, sorghum, soybeans, and vegetables. Pyrethroids, however, are also the main class of chemistry currently used to protect against corn earworms in sweet corn in Pennsylvania. Examples include Asana, Baythroid, bifenthrin, Mustang, permethrin, and Warrior. We hypothesized that emigrants from southern populations showing increased tolerance to pyrethroids could affect insect pest control in the Northeast. Data testing the susceptibility of corn earworm to another pyrethroid, cypermethrin (Ammo®), has been accumulating for several years from southern and Midwestern states. Therefore, we looked at the susceptibility of corn earworms captured in Pennsylvania to cypermethrin.

We used moths collected in two methods from the Southeast Agricultural Research and Extension Center in Landsville, Lancaster County, PA in 2003, 2004, and 2005. First, we used moths collected from pheromone traps – this tests only males that have flown for an unknown distance, and are of unknown ages. Second, we collected larvae from corn ears in the field, and reared them on a diet. This tests both males and females, prior to them flying, and at a very young adult age. In both cases, adult moths were held in cages for 24 hours with sugar water prior to the bioassay, and we only tested moths that appeared healthy at the time of the test.

We used a standardized adult vial test (AVT) bioassay. The insides of glass vials were coated (in acetone) with technical grade cypermethrin. The concentrations were 5 micrograms and 10 micrograms of cypermethrin/vial. Control vials were treated with acetone alone. The acetone was allowed to evaporate, leaving a coating of cypermethrin on the glass vials. One moth was placed in each vial, the vials were capped loosely and held at room temperature, and mortality recorded 24 h after the test was initiated. In a perfect situation, we should expect to see 100% survival of the moths in the control vials, very close to 0% survival of the moths tested at the 5 microgram rate, and definitely 0% survival at the 10 microgram rate.

Survival of pheromone-trap collected moths has been relatively low in the cypermethrin-treated vials. At the 5 microgram rate, survivorship ranged from 0 – 8% in Pennsylvania. Survival at the 10 microgram rate was even lower: from 0-3% in Pennsylvania. Some of this could be due to moths that tolerate the insecticide, but some could be due to random variation. Our only way to look at the random variation was to look at the control vials. In these controls, where we expect 100% survival, we observed 72% to 100% survival.

Dramatic increases, however, were clearly evident in the survival of adults reared from field-collected larvae relative to those collected from pheromone traps. Survivorship from reared moths was 12 to 27% at the 5 microgram rate, and 2 to 5% at the 10 microgram rate, in Pennsylvania. And we had cleaner tests when using reared moths: survival of reared moths in the control vials was always 100%.

This is part of a larger project where similar tests were conducted in neighboring states: More than 22,000 moths were bioassayed in five states from 2003 to 2005. In the worst case evaluation of the data, preliminary estimation using moths reared from field-collected larvae, averaged across locations and years, show 31% survival at the 5 microgram rate and 11% survival at the 10 microgram rate. We are currently conducting an error-checking process on the data from all states, and will look for patterns in the survivorship results. The results reported here is a preliminary snapshot of what we found in Pennsylvania.

So what management would we advise for commercial sweet corn growers? Our results suggest that pyrethroid-resistant corn earworms occur in the northeastern U.S. each year, but that they may be fairly rare. Since we are dealing primarily with migrants, then we cannot do much to alter the selective pressure that the moths are subjected to. In other words, altering the chemicals we use here will probably not have much impact on the population genetics of the corn earworm. That will require alterations at the place where breeding is occurring, which is to the south of us. This may happen in the future, due to factors such as the newer transgenes being developed for both corn and cotton, and due to resistance management efforts in these more southerly locations. It thus helps northeastern agriculture if we participate in more regional efforts looking at these migratory species.

We have *not* seen, or been able to document, any field failures from Pennsylvania or other northeastern states. In the Midwest, small plot efficacy trials clearly

See Corn Earworms on page 4

showed a great deal of variability, including a loss of efficacy, in multiple locations in 2005. However, Midwestern growers also report using aerial application, and they expect some control against the adults with this method, and they also are not currently reporting field failures.

So what alternatives exist for Pennsylvanian growers? First, realize that corn earworm often arrives late. Using pheromone traps on your farm, and watching the immigration roughly approximated by a network of pheromone traps, helps you gauge when this pest is arriving.

Second, we currently expect the pyrethroids to continue to work, especially at lower population densities, and most of Pennsylvania rarely gets extremely high densities.

Third, Bt-sweet corn is an option. You could use Bt-cultivars for plantings you expect to harvest in late August or thereafter. Do *not* expect to eliminate all sprays: Bt-sweet corn is very effective against European corn borer and corn earworm, but less effective against fall armyworm, and in the absence of any sprays we have seen problems with sap beetles, several species feeding on silks, and some aphid problems.

Fourth, tank-mixing with, or switching to, the older carbamates or phosphates (Lannate or Larvin) if high rates of immigration occurs is an option. Be careful, these are materials with lower LD50s (and thus are more toxic to humans), and while we expect them to work today, the corn earworm had a history of resistance with carbamates and phosphates in cotton many years ago.

Fifth, switching to an entirely new class of chemistry, with SpinTor® or Entrust®, is an option. This has shown to be effective in tests in New York, but less so under higher pressure in neighboring Mid-Atlantic states, and we don't currently have much data from Pennsylvania. Sixth, there is the old method of putting oil on the silks. This has been developed as a method for growing organic sweet corn, with a backpack application method called the Zealator.

Clearly, we need some more research in this area, and regionally coordinated efforts at understanding the biology, migration, and management of the corn earworm, and other migratory noctuids. Hopefully, this report provides a snapshot of what we are currently seeing in our data.

Try to evaluate the ear quality of the Bt variety in comparison with the ear quality of your non-Bt corn of the same maturity. Try to kept records on the insecticide costs, time, and labor required to handle and apply insecticides on the Bt and non-Bt plantings. Ultimately, we want to collect enough information to generate a crop budget to determine if growing Bt sweet corn is profitable.

We also encourage you to sell your Bt sweet corn and to increase awareness of the reduced-risk advantages of the technology at the point of purchase. Keep track of the amount of marketable ears harvested and sold and any feedback from your customers regarding the quality and taste of the Bt corn and any concerns about the technology.

Submitted by Gerald M. Ghidiu, Ph.D., Specialist in Vegetable Entomology. ❑

Vegetable Disease Update

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

✔ **Powdery mildew – Cucurbits – The first reports of Powdery mildew on cucurbits have come in these past few weeks.** 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 strobilurin (Pristine, Group 11) should be tank mixed with a protectant fungicide such as Bravo (M5) or Sulfur (M1) and rotated with fungicides of a different chemistry such as Bravo (chlorothalonil, M5) + 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 *2006 New Jersey Commercial Vegetable Production Recommendations Guide*.

✔ **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. Alternate one of the following: azoxystrobin (FRAC group 11, Amistar 80WDG at 2 to 5 oz/A or Quadris at 6.2 to 15.4 fl oz 2.08F/A), or Flint (trifloxystrobin, 11) 50WDG at 2 to 4 oz/A, or Cabrio (pyraclostrobin, 11) 20EG at 8 to 12 oz/A with Maneb (M3) 75DF at 1.5 to 2 lb/A or OLF.

✔ **Pepper – Phytophthora blight –** Heavy rains these past few weeks have made conditions ideal for Phytophthora blight development.

For control of the crown rot phase of blight:

Apply 1 pt Ridomil Gold 4E/A or 1 qt Ultra Flourish 2E/A (mefenoxam, 4). Apply broadcast prior

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to planting or in a 12- to 16-inch band over the row before or after transplanting. *Make two additional post planting* directed applications at 1 pint Ridomil Gold 4E or 1 qt Ultra Flourish 2E per acre to 6 to 10 inches of soil on either side of the plants at 30-day intervals. Use formula in the "Calibration for Changing from Broadcast to Band Application" section of Calibrating Granular Application Equipment to determine amount of Ridomil Gold needed per acre when band applications are made.

When using polyethylene mulch, apply Ridomil Gold 4E at the above rates and timing by injection through the trickle irrigation system. Dilute Ridomil Gold 4E prior to injecting to prevent damage to injector pump.

For prevention of the stem and fruit rot phase of blight:

Apply the following on a 7- to 10-day schedule:

Fixed copper at 2 lb 77WP/A or OLF, or

Ridomil Gold Copper (mefenoxam + copper, 4 + M1) at 2.5 lb 65WP/A. Make three to four applications at 10- to 14-day intervals. (Only apply Ridomil Gold 4E at planting and 30 days later. The third application of Ridomil Gold 4E cannot be made when Ridomil Gold Copper is applied.)

The following materials are labeled for Phytophthora on peppers, but there is little information on efficacy in the Mid-Atlantic region. For best results tank mix with a copper containing fungicide.

Forum (dimethomorph, 40) at 6.0 oz 4.18SC/A, or

Tanos (famoxodone + cymoxanil, 11 + 27) at 8-10 oz 50W/A

✔ **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. Beginning at flowering, alternate one of the following: azoxystrobin (FRAC group 11, Amistar 80WDG at 2 to 5 oz/A or Quadris at 6.2 to 15.4 fl oz 2.08F/A), or Flint (trifloxystrobin, 11) 50WDG at 2 to 4 oz/A, or Cabrio (pyraclostrobin, 11) 20EG at 8 to 12 oz/A with Maneb (M3) 75DF at 1.5 to 2 lb/A or OLF.

✔ **Potato – Black Leg –** The aerial phase of Black leg, also known as aerial stem rot, has shown up over the past week. 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 + M3) 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.

✔ **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 *2006 New Jersey Commercial Vegetable Production Recommendations*.

✔ **Tomato – Bacterial spot, speck and canker –** Bacterial diseases can cause serious problems in the field if infections are allowed to spread. Apply Actigard (P) at 0.33 oz 50 WG/A, or fixed copper (M1) at 1 lb a.i./A *plus* a mancozeb (Dithane, Manex II, Manzate, Penncozeb, M3) at 1.5 lb 75DF or OLF, or ManKocide (M1 + M3) at 2.5 to 5.0 lb 61WP/A, or Cuprofix MZ (M1 + M3) at 1.75 to 7.25 lb 52.5DF/A on a 7 day schedule. ❑

Diseases Briefs

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

Late blight reported on potato on Long Island, New York and on tomato in Virginia.

This past week late blight was confirmed on potato on Long Island, New York and on tomato in Virginia. The wet weather conditions over the past few weeks have made conditions ideal for Late blight development in New Jersey. Potato and tomato growers who have not switched to a late blight specific fungicide program should consider doing so.

For tomato growers, switch to one of the following fungicides; and always alternate the following tank mixtures:

Forum (dimethomorph, 40) at 6.0 fl oz 4.18SC/A *plus* a protectant fungicide, or

Previcur Flex (propamocarb HCL, 28) at1.5 pt 6F/A *plus* a protectant fungicide, or

Ranman (new for 2006, cyazofamid, 21) at 2.1-2.75 fl oz 400SC/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.

For potato growers, 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:

Forum (FRAC Group 40) the old (Acrobat, dimethomorph, 15) at 4.0 to 6.0 fl oz 4.18SC/A plus a protectant (chlorothalonil or mancozeb), or

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

Gavel (zoxamide + mancozeb, 22 + M3) 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 1.2 pt 6F/A.

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

Ranman (cyazofamid, 21) 1.4 to 2.75 fl oz 400SC/A – new for 2006, or

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

Use only in combination with a protectant fungicide (chlorothalonil or mancozeb)

UPDATE - Cucurbit Downy mildew now confirmed in Delaware.

Cucurbit Downy mildew was confirmed in Kent County, Delaware on July 11th by Dr. Kate Everts, vegetable pathologist, University of Maryland. This is the first report of cucurbit Downy mildew in the mid-Atlantic region. Cucurbit growers in New Jersey who have not already done so should switch to a fungicide program with Downy mildew specific fungicides. Remember, the best management tool for Downy mildew control is regular scouting and preventative fungicide applications. For more information on Downy mildew control see next item.

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Vegetable Diseases of the Week

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

Powdery mildew on cucurbit leaves.

Downy mildew sporulating on underside of a cucumber leaf.

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Cucurbit Downy mildew widespread in North Carolina.

Cucurbit downy mildew was reported to be widespread in North Carolina by Dr. Gerald Holmes, vegetable pathologist at North Carolina State University this past week. Downy mildew is as far north as the Virginia border with the first confirmation in North Carolina coming on June 30th. Please visit NCSU's cucurbit Downy mildew forecasting website to track its progress throughout the US during the production season at www.ces.ncsu.edu/depts/pp/cucurbit. Cucurbit Downy mildew has been extremely destructive in New Jersey the past two growing seasons. The best management tool for Downy mildew control is regular scouting and preventative fungicide applications. The following are the most effective materials. Tank mix one of the following products from the list below with a protectant such as Bravo, Echo, Equus (chlorothalonil, M5) at 1.5-3 pt 6F/A (0 Day PHI) or Gavel (zoxamide + mancozeb, 22 + M3) at 1.5 to 2.0 lb 75DF/A (5 Day PHI)(some muskmelon may be sensitive).

Ranman (cyazofamid, 21) at 2.1 to 2.75 fl. oz. 400SC/A (0 Day PHI), or

Previcur Flex (propamocarb HCL, 28) at 1.2 pt 6F/A (3 Day PHI), or

Curzate (cymoxanil, 27) at 3.2 oz 60DF/A (3 Day PHI), or

Pristine (pyraclostrobin + boscalid, 11 + 7) at 12.5 to 18.5 oz 38WG/A (0 Day PHI) , or

Tanos (famoxodone + cymoxanil, 11 + 27) at 8 oz 50WDG/A (3 Day PHI), or

Cabrio (pyraclostrobin, 11) at 8 to 12 oz 20WG/A (0 Day PHI)

Remember that materials with similar modes of action (i.e. same FRAC group) should be alternated and tank mixed with a protectant fungicide to reduce the chances for resistance development. ❑

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 72 degrees north, 74 degrees central and 75 degrees south. Extremes were 94 degrees at Hammonton and Pomona on the 5th, and 54 degrees at Charlotteburg and Long Branch on the 7th. Weekly rainfall averaged 1.64 inches north, 1.46 inches central, and 1.94 inches south. The heaviest 24 hour total reported was 2.03 inches at West Deptford on the 5th to 6th. Estimated soil moisture, in percent of field capacity, this past week averaged 90 percent north, 85 percent central and 82 percent south. Four inch soil temperatures averaged 74 degrees north, 75 degrees central and 76 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/10/06

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
CANOE BROOK	1.89	17.35	-.40	90	56	74.	2	1412	357	91
CHARLOTTEBURG	1.08	17.77	-.17	87	54	71.	2	1161	319	82
FLEMINGTON	1.94	23.16	6.10	87	55	73.	0	1349	258	91
FREEHOLD	1.40	16.75	.10	91	54	73.	0	1366	177	88
LONG BRANCH	1.43	17.30	.67	92	54	74.	1	1282	166	77
NEW BRUNSWICK	1.48	16.99	.60	90	56	74.	0	1442	178	89
TOMS RIVER	2.15	15.12	-1.63	91	57	74.	0	1366	242	78
TRENTON	.84	16.94	1.50	89	60	75.	0	1482	165	66
CAPE MAY COURT HOUSE	1.36	11.15	-3.55	92	59	74.	0	1387	184	81
DOWNSTOWN	1.84	14.36	-.83	92	60	74.	-1	1448	116	81
GLASSBORO	2.43	16.04	-.26	90	64	75.	0	1605	294	73
HAMMONTON	1.84	13.57	-2.58	94	61	75.	0	1530	225	77
POMONA	2.37	14.87	.37	94	59	75.	1	1425	221	78
SEABROOK	1.82	17.35	2.70	93	62	76.	1	1663	323	72
SOUTH HARRSION missing										
WES KLINE — GDD BASE 40 PINEY HOLLOW										
LAST WEEK 255 (Ending 7/03/06)										
THIS WEEK 241 (Ending 7/10/06)										

NJ AGRICULTURAL EXPERIMENT STATION
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Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is reponsible 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.

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