

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

SEPTEMBER 14, 2006

Pest Notes

Gerald M. Ghidui, Specialist in Vegetable Entomology



Corn Earworm Resistance?

Several growers throughout the mid-Atlantic region (also in the mid-West) have stated that there was an unusually high survival rate of corn earworm on soybeans and corn after application(s) of pyrethroid insecticides. Many suspect that the corn earworm is resistant to the pyrethroid-class of insecticides, and thus these insecticides are not as effective as in past years. The assays shown below were conducted by researchers at the Painter research station to address the question of whether or not the pyrethroids will control corn earworm:

Corn earworm insecticide lab assay 2006 (with permission of Dr. T. Kuhar)

Researchers: Tom Kuhar & Helene Doughty, Entomology, Virginia Tech, ESAREC

Objective: To test the toxicity of field-rate applications of selected insecticides on corn earworm.

Procedures: Approximately 400 large corn earworm larvae (mostly 4th & 5th instars) were collected from soybean fields in Northampton County, VA in early September and brought back to the lab and dispensed individually into 9-cm Petri dishes. Corn earworm larvae are cannibalistic and thus must be assayed using 1 per container. Two separate assays were conducted (sweet corn ear and soybean leaf) using the same list of insecticide treatments. In one experiment, untreated soybean leaves (~8-cm diam.) were dipped into field-rate concentrations of each insecticide treatment for 10 seconds, held vertically to allow excess solution to drip off, and placed in a drying rack in a fume exhaust hood to air dry for 2 hr. Leaves were then placed individually into the Petri dishes along with a single CEW larva/dish. A total of 10 dishes were set up for each insecticide treatment. The containers were maintained at room temperature approx. 27 ± 2°C, 40 to 70% RH, and a photoperiod of 12:12 (L:D). Mortality of the larvae was determined after 24, 48 and 72 h of exposure.

In the second experiment, fresh sweet corn ears in the husk were purchased from a local supermarket and dipped into the same insecticide solutions as described previously. Each ear was placed in a 32 ounce cup containing a single CEW larva, and then a mesh bag was fastened over the cup and ear using a rubber band. A total of ten cups were set up for each insecticide treatment. The same methods as described earlier for soybean were followed for the sweet corn assay.

SEE LAB ASSAY ON PAGE 2

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LAB ASSAY FROM PAGE 1

In addition, field trials in Virginia, New Jersey and Delaware also do not support the theory of high levels of resistance to the pyrethroids by the corn earworm.

Other factors that may cause a failure of insecticides to control corn earworm in sweet corn include:

- poor spray coverage of the ear tips (silks). The most effective application method is ground equipment with drop nozzles to ensure that the spray is placed directly on the ear tip, where the corn earworm larvae enter the ear. Higher pressure, higher volumes may be necessary for adequate coverage.
- poor timing of spray application. Make sure the sprays begin when green silks appear and the moths are active (based on light or pheromone traps). If sprays are just one day too late, the eggs that are deposited on the ears will hatch and larvae will move to the ear tip, and control is no longer possible.
- spraying in hot temperatures. The pyrethroids will be most effective when sprayed under conditions that are not too hot. The optimum timing of application is early evening, when the wind dies down and temperatures drop. The material is thus in place for the corn earworm's evening flight.
- rainfall washoff. Though rain washoff is not a usual problem, heavy rains may reduce the effectiveness of 'just applied' insecticide sprays, before the spray has had a chance to dry. Though difficult, it is best to wait until just after a rainstorm rather than just before it.

As with all pesticide sprays, make sure the rate is correct and double-check your calculations to ensure that the correct amount is being applied. It is also suggested that you double-check the output of your sprayer in late summer before the sweet corn sprays start to make sure that the output hasn't changed from that recorded in the beginning of the year. Also, check all nozzles and hoses, etc., to make sure none are plugged and that the equipment is working properly. □

Table 1. Percentage mortality of field-collected 4th and 5th instar corn earworms placed on soybean leaves dipped in field-rate insecticide concentrations, Painter, VA; 2006.

Treatment	% mortality		
	24 hours	48 hours	72 hours
Warrior ZT 3.84 fl oz/acre	50	60	100
Mustang Max 3.84 fl oz/acre	20	60	100
Proaxis 3.84 fl oz/acre	70	80	100
Lannate 2.4 LV 1 pt /acre	70	80	100
Generic lambda-cyhalothrin SG	60	90	100
Lannate 2.4 LV 1.5 pt /acre			
+ Warrior ZT 3.2 fl oz/acre	100	100	100
UTC	0	10	10

Table 2. Percentage mortality of field-collected 4th and 5th instar corn earworms placed on sweet corn ears dipped in field-rate insecticide concentrations, Painter, VA; 2006.

Treatment	% mortality			% of ears damaged:-infested by larva
	24 hours	48 hours	72 hours	
Warrior ZT 3.84 fl oz/acre	100	100	100	0
Mustang Max 3.84 fl oz/acre	70	100	100	0
Proaxis 3.84 fl oz/acre	70	90	100	0
Lannate 2.4 LV 1 pt /acre	100	100	100	0
Generic lambda-cyhalothrin SG	100	100	100	0
Lannate 2.4 LV 1.5 pt /acre				
+ Warrior ZT 3.2 fl oz/acre	100	100	100	0
UTC	10	10	20	80

TWILIGHT MEETING FROM PAGE 8

PESTICIDE CREDITS WILL BE AVAILABLE

Pre-Registration is required by calling Pat at 908-788-1338 –RCE of Hunterdon County

Registration is \$5.00 per person payable at the meeting

For more info contact: Peter Nitzsche (973) 285 8307, Winfred Cowgill (908) 788 1339

Note- Coffee and light refreshments will be served inside following the tour, **no meal** will be served. □

Vegetable Disease Update

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

✓ **Cole Crops – Downy mildew** can be a problem in fall cole crops (cabbage, collards, broccoli, cauliflower and kale). Infection begins as irregular yellow spots on leaves which later turn brown. A white fluffy growth develops on the underside of leaves during cool moist weather. When the disease first appears apply a fungicide every 7 to 10 days. Bravo, Maneb, Ridomil Gold Bravo and Aliette are labeled. For more information on control please see the *2006 New Jersey Commercial Vegetable Production Recommendations*.

✓ **Carrot – Leaf Blights** - *Alternaria* and *Cercospora* are two soil-borne fungal pathogens that may cause early defoliation in carrots reducing yields and making harvest difficult. Both pathogens produce distinct symptoms on carrots. *Symptoms of Alternaria include irregular, dark brown to black spots which typically show up on older leaves first. Cercospora leaf spots are round, grayish-brown and are more prevalent on younger foliage.* Both leaf blights typically start at the margins of leaflets and as more spots develop leaflets begin to wither and die. Symptoms similar to leaf infections can develop on stems and petioles. Control of both diseases begins with regular scouting and preventative fungicide applications on susceptible varieties. Apply Amistar 80WDG (azoxystrobin, 11) at 3 to 5 oz/A or OLF, or Cabrio 20EG (pyraclostrobin, 11) at 8 to 12 oz/A, or Pristine (pyraclostrobin + boscalid, 11 +7) tank-mixed or alternated with Bravo, Echo, Equus (chlorothalonil, M4) at 1.5 to 2 pt/A or OLF, or Endura 70W at 4.5 oz/A. Apply Rovral 50WP (iprodione, 2) at 1 to 2 lb/A or Switch (cypridonil, 9) at 11 to 14 oz/A for *Alternaria* only. Do not make more than one sequential application of Amistar, Pristine or Cabrio (Group 11) before alternating with another fungicide chemistry. Several carrot varieties exhibit leaf blight tolerance and should be grown where adapted. For more information on tolerant varieties and control please see the *2006 New Jersey Commercial Vegetable Production Recommendations*.

✓ **Cucurbits – Phytophthora blight** – For protection against the fruit rot phase of the disease apply one of the following:

Forum (dimethomorph, 40) at 6.0 fl. oz 4.18SC/A (must be tank mixed with another fungicide active against *Phytophthora* blight), or Ranman (cyazofamid, 21) at 2.75 fl oz 400SC/A plus as organosilicone surfactant (do not tank mix with copper) Tanos (famoxodone + cymoxanil, 11 + 27) at 8.0 to 10.0 oz 50WDG/A (for suppression only), or Gavel (zoxamide + mancozeb, 22 + M2) at 1.5 to 2.0 lb 75DF/A (not for use on pumpkin, some muskmelon varieties are sensitive to Gavel, see label)

✓ **Cucurbits - Downy mildew** - 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, not for use on pumpkin). 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.

✓ **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 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*.

✓ **Leeks – Purple Blotch** – Symptoms of Purple blotch include tannish-brown, elongated, concentric, circular lesions with chlorotic margins. Lesions run parallel with the leaf veins. Development of Purple blotch is favored by warm night temperatures. Fungicide applications should begin in the fall as soon as transplants are set out on 10-day intervals as long as night temperatures remain warm. There are a number of fungicides labeled for the control on Purple blotch. For more information on control please see the *2006 New Jersey Commercial Vegetable Production Recommendations*.

✓ **Lettuce – Bottom Rot/Drop** – For Bottom Rot, Endura 70W (boscalid, 7) at 8 to 11 oz/A, or Rovral 50WP

SEE DISEASE UPDATE ON PAGE 4

(iprodione, 2) at 1.5 to 2 lb/A or OLF should be applied one week after transplanting or thinning and 10 and 20 days later. For Drop, the biological Contans 5.3WG at 2 to 4 lbs/A pre-plant can be incorporated at a depth of 1 to 2 inches, or Rovral 50WP (iprodione, 2) at 1.5 to 2 lb/A beginning one week after transplanting or thinning and again at 10 and 20 days later. For more information on control of Bottom Rot and Drop and other important diseases of lettuce please see the 2006 New Jersey Commercial Vegetable Production Recommendations Guide.

✓ **Parsley – Septoria Blight /Bacterial (blight) leaf spot** – Leaf spots caused by **Septoria blight** are easily distinguished by small, angular to round leaf spots with grayish-brown centers with a definitive dark, brown margin. Numerous black fruiting bodies develop and are visible in the center of lesions. Spread of Septoria blight is by wind-driven rain, heavy dews and overhead irrigation. Workers and equipment may also spread the disease during wet conditions. Best management practices include i) proper crop rotations of at least 2 years and by using clean or treated seed; ii) *scout fields early* for symptom development; iii) keeping workers and equipment out of fields with wet foliage; and iv) plowing under residue of harvested crop and avoid planting in fields adjacent or near previously infected fields. Applications of azoxystrobin (Amistar or Quadris) and fixed copper can be alternated every 7 days for control. Leaf spots caused by Bacterial blight appear as small brown to black spots on the leaves. It does not have the grayish brown centers or brown margins like **Septoria**. The pathogen can be soil or seed borne and develops during cool, moist weather. The disease spreads during cool rainy periods or under sprinkler irrigation; and a high plant density. The same control measures listed for Septoria will assist in preventing spread of **Bacterial leaf spot** as long as fixed copper is included with the azoxystrobin. If Oxidate is used, follow the label carefully.

✓ **Pepper – Phytophthora blight**

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 8.0 to 10.0 oz 50WDG/A

✓ **Pepper – Anthracnose** - Symptoms of fruit infec-

tion 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.

✓ **Peppers - Bacterial leaf spot** – Symptoms of Bacterial spot on pepper leaves include small, brown water-soaked lesions that turn brown and necrotic in the centers. Spots may coalesce and form large blighted areas on leaves and premature defoliation can occur. On fruit, brown lesions can form which have a roughened, cracked wart-like appearance. High temperatures, high relative humidity and rainfall favor Bacterial spot development. Loss from Bacterial spot can be reduced somewhat by maintaining high levels of fertility, which will stimulate new growth. For more information on control of Bacterial spot of pepper please see the 2006 New Jersey Commercial Vegetable Production Recommendations.

✓ **Spinach – White Rust** – Symptoms of White rust include *irregular, chlorotic areas on the upper leaf surface with white, blister-like pustules developing on lower leaf surface*. Development of White rust is favored by cool nights and mild day temperatures *with prolonged periods of dew or fog which favor wet leaf surfaces*. Control of White rust begins with crop rotations of 2 or more years. Some varieties have partial resistance and should be used if possible. A preventative fungicide schedule should begin 2 to 3 weeks after planting, and/or *if weather conditions favor disease development*. There are a number of fungicides labeled for the control of White rust on spinach. For more information on the control of White rust on spinach please see the 2006 New Jersey Commercial Vegetable Production Recommendations.

✓ **Pumpkin - White mold or Sclerotinia rot** - White mold may cause problems when pumpkins are planted in the same field each year and in fields where other susceptible crops such as bean have been grown. Development of white mold is favored by prolonged, cold wet weather. Symptoms often begin to show up as a soft, mushy area around the stem as the fruit reaches maturity (See VDOW). Infected fruit often collapse inward near the stem. Large, black fruiting bodies (sclerotia) may be produced around infected areas. Sclerotia serve as overwintering and long-term survival structures. A long crop rotation is necessary to help control white mold. Infected fruit should be removed from the field immediately.

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Pumpkins Ready for Harvest?

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology and Art Brown, Senior Associate Dean-Agriculture & Natural Resources

The fall is upon us and many pumpkin fields are ready for harvest. The pumpkin harvest season begins shortly after Labor Day and extends through the end of October. For those keeping track, that's roughly an eight-week market. The question for many is 'What to do with marketable fruit in the field until it's time for sale?'

As long as there is good, healthy foliage present, the best place for a pumpkin is on the vine. Foliage helps protect fruit from potential sunscald injury and will help any late setting fruit size. However, keeping foliage around will also require additional fungicide applications. If the foliage cannot be maintained, move the mature fruit to a dry, well-ventilated area.

Many growers will 'let Powdery mildew' take foliage out a few weeks before they are ready to be harvested. Why? Pumpkins are a lot easier to harvest without dense foliage in the field. Growers should be aware that the major drawback to this method is that Powdery mildew can reduce stem quality by causing them to turn brown and become brittle prematurely. Once foliage is gone, pumpkins can easily be stored and 'cured' in the field by lopping them off the vine and placing them in un-stacked windrows as long as the weather cooperates. Temperatures of 80 to 85°F with relative humidity of 80 to 85% for 10 days after lopping are ideal. After this, temperatures between 50 to 60° F with 50 to 70% relative humidity will keep respiration and potential weight loss down. Cool, wet and 'frosty' weather will do most of the damage to ripe fruit in the field by slowing down the curing process, exposing fruit to potential fruit rot pathogens and in the case of frosts, cause fruit to melt if temperatures get too low. Knowing your market, your crop and keeping an eye on the weather will help go a long way in having a successful pumpkin harvest season. □

PUMPKINS FROM PAGE 4

✓ **Pumpkin - Sunscald injury** - Sunscald injury occurs when developing pumpkin fruit are suddenly exposed to heavy sunlight during the latter stages of fruit ripening during the fall. Sunscald injury often occurs when pumpkin plants become prematurely defoliated in the early fall by **Powdery mildew** or **Downy mildew** or when vines collapse due to **Phytophthora blight** or **bacterial wilt**. Symptoms of sunscald injury include the collapsing of rind tissue on the side of the fruit which is in direct contact with the afternoon sun. Sunscald injury often develops as a pinkish-red color on exposed fruit which becomes flat in appearance. Over time fruit tissue may become tan to brown and secondary pathogens often invade the sunscald injured areas of the fruit. To help reduce the potential for sunscald injury maintain foliage for as long as necessary, especially if fruit are going to be left in the field for long periods. □

Vegetable Disease of the Week

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



Sunscald injury on pumpkin fruit with secondary infections.



White mold of pumpkin causing fruit to collapse inward around stem.



Powdery mildew infection on stem of pumpkin fruit.

IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

Catches of **European corn borer (ECB)** adults have declined in all areas (see ECB map). This is due at least in part to the recent string of cool nights. ECB is still a threat to sweet corn. Few pre-silking plantings remain, but for these, 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:

Shirley	4	New Egypt	2	Elmer	1
Seeley Lake	3	Belvidere	1	Milltown	1
Centerton	2	Cohansey	1	Oldwick	1
Downer	2	Downer	1	Sykesville	1

Adult **corn earworm (CEW)** adult catches have declined with cooler weather as well (see CEW map). It is likely that a fairly high population is present, but is being suppressed by cold night temperatures. Warmer evening temperatures will cause increased catches while evening temperatures in the 50°F range will decrease activity. In general, this population is significant, and will cause considerable damage to corn if not managed appropriately. Silk spray schedules must be strictly observed to prevent CEW damage. On the CEW map, the crosshatched area (green on the web version) represents a 3-day spray schedule.

Silking Spray Schedules*

North – 3-4 days

Central – 3 days

South – 3 days

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

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

Medford	30	Clinton	7	Seeley Lake	5
Phillipsburg	13	New Egypt	7	Wall	5
Folsom	12	Cinnaminson	6	Jones Island	4
Cedarville	7	Milltown	5	Shirley	4

The occurrence of **fall armyworm (FAW)** larval feeding is still high everywhere in sweet corn. All counties have damaging populations. Infestations on very young sweet corn were detected this week in Sussex

County. FAW often attack young plants, so corn that is not yet silking must be scouted at least weekly. For those growing B.t. modified sweet corn varieties, remember that FAW is less affected by this toxin than are ECB and CEW. Some FAW injury will occur on these varieties. 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

Late season **two-spotted spider mites (TSSM)** infestations are occurring in many areas now. Look at 2 complete leaves each on 5 consecutive plants in 10 random locations. Note the presence of whitish pin-spots or yellowing on the upper surface of the leaf. Look for TSSM on the underside of leaves with these symptoms. Note the number and location of sites with TSSM. Consider spot treating to prevent further spread into the field. Check also for the presence of **aphids**. Increasing aphid populations are often detected by the presence of their cast skins, which adhere to the sticky droppings they produce. If colonies are increasing over several scouting visits, especially if aphid droppings are accumulating on fruit, consider an insecticide to reduce the population.

With late season populations of CEW adults, consider weekly insecticide applications to limit injury by the **tomato fruitworm** (larval CEW) where adult catches approach 10 per night. Remember that synthetic pyrethroid insecticides may increase aphid populations over time. Check the *2006 Commercial Vegetable Production Recommendations Guide* for effective materials.

Pumpkins

Down mildew (DM) and **powdery mildew (PM)** are present in many fields. Rigorous fungicide programs must be maintained by growers in order to preserve foliage. In addition to the regular protectant fungicide program for PM, a fungicide with specific activity against the DM organism should be used on a weekly basis as long as foliage must be maintained to allow the fruit to mature. Check the *2006 Commercial Vegetable Production Recommendations Guide* for effective materials. DM first appears as sharp yellow spots on the upper surface of leaves. If conditions are wet, as with morning dew, dark spores will be produced from the lesion on the underside of the leaf. Lesions are first associated with veins, but will merge quickly to kill entire leaves. When this happens, the petioles remain erect, but the dead brown leaves hang in a “dish rag” fashion. Under conditions of high moisture, defoliation will occur rapidly.

As fruit mature, be sure to check at least weekly for the presence of **cucumber beetles** and damage to the

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rinds of maturing fruit. Striped and spotted cucumber beetles are attracted to fruit, and will scar the rinds in the hard green or mature orange stages. This is especially true with the large varieties like Atlantic Giant. Under moist conditions, damage to the rinds will result in a soft rot infection. Another problem at this time of the season is damage from vertebrate animals like deer, rabbits, mice, etc. These animals will feed on fruit at any time, but are particularly frustrating after fruit are mature and investment in the field is high. Consider removing mature fruit from the field as early as is practical to limit this type of injury.

Peppers

With the second **ECB** flight now active, it is important to monitor local moth catches to determine when to begin a protective program for ECB management. If local blacklight traps are regularly capturing at least 1 moth per night, consider a weekly insecticide application to limit fruit infestation by ECB larvae. On the ECB map, peppers in areas that are shaded or cross-hatched (blue or green on the web version) should be treated preventively for ECB. Fields should be scouted weekly. Check 5 consecutive plants each in 10 random locations. Look at the undersides of 2 leaves per plant for the presence of **aphids**, **spider mites** and ECB egg masses. Consider treating if aphids exceed approximately 120 per 100 leaves, and if spider mites are found on 10 leaves, and if 2 or more ECB egg masses are found in the sample. Observe 2 fruit per plant for the presence of larval infestation or soft rot. Dramatically increasing soft rot is an indication of a possible ECB larval infestation.

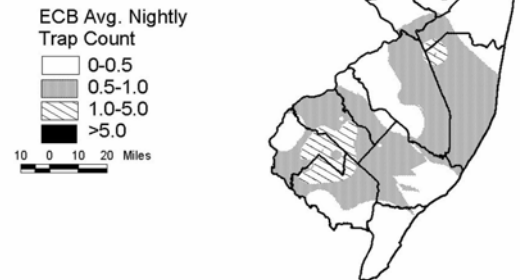
Beet armyworm (BAW) pheromone traps have been deployed from Cape May northward through Burlington County. BAW adult catches have increased slightly over the past week, with highest activity in the Gloucester-Salem border area and in lower Salem County. It is advisable to scout fields regularly for BAW at this time. First signs of infestation will include foliar damage and droppings near terminal growth. As larvae enlarge, they will attack fruit. Larvae are greenish, with a prominent dark spot on each side behind the head capsule.

Cole Crops

Be sure to check all fields at least weekly for the presence of **imported cabbageworm (ICW)**, **diamond-back moth larvae (DBM)**, and **cabbage looper (CL)**. Additionally, significant numbers of BAW were found in cole crops in the New Egypt (Ocean County) area this week. All these larvae are capable of causing significant injury on all stages of late cole crops at this time. Be sure to look at the youngest leaves of plants, as this is the preferred feeding area of ICW. Consider treating if 20% of heading type crops are infested prior to head formation and if greater than 5% are infested while heads are present. For leafy greens, consider treating if 10% or more are infested at any stage. While scouting, note also

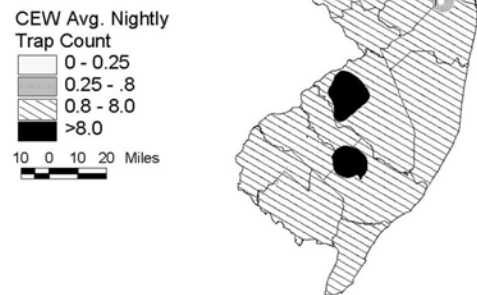
the presence of target shaped lesions caused by **Alternaria**. This is especially important on cabbage that is to be stored. Consider protectant fungicide applications to limit this injury. Consult the *2006 Commercial Vegetable Production Recommendations Guide* for effective materials.

Distribution of Adult European Corn Borer for the Week Ending September 13, 2006



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 September 13, 2006



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

Distribution of Adult Beet Armyworm for the Week Ending September 13, 2006



Data collected by Joe Mahar and processed by Kris Holmstrom
Rutgers Cooperative Research and Extension

Tree Fruit Variety Showcase and Horticulture Research Twilight Meeting

September 19, 2006
5:00-8:30 pm rain or shine

Sponsored by Rutgers Cooperative Research & Extension in cooperation with the Northeast Organic Farming Association of NJ

Participate in informal tours and discussions of the following research projects led by:

Winfred P. Cowgill Jr., Hunterdon County Agricultural Agent, Peter Nitzsche, Morris County Agricultural Agent, Raymond Samulis, Burlington County Agricultural Agent, William Tietjen, Warren County Agricultural Agent, Dr. Jim Simon, Professor, Cook College, Rutgers, Dr. Mel Henninger, Vegetable Specialist, RCRE, and Kris Smolenski, RCE of Salem County

Location: Rutgers Snyder Research and Extension Farm, Pittstown, NJ

Time: *Fruit Variety Show Case 5:00-6:00 PM*

Field Tour 6:00- 7:00 PM

Inside Program 7:00 -8:30 PM

Specialty Crops

Herbs, Spices and Medicinal Plants- Dr. Jim Simon, Professor, Cook College, Rutgers

Fruit

Apple and Peach cultivar showcase

Over 60 peach selections and 20 apple selections.

Note- these trays of fruit will be on display at 5pm prior to the meeting at 6: 00 PM

Super Slender Spindle System Apple Trial (2000 Trees/Acre) – Win Cowgill, RCE of Hunterdon County
NC-140 Apple Rootstock Trial for Apple Replant Disease -Win Cowgill

Vegetable

Tomato Specialty and Heirloom Observational Variety Trial- Peter Nitzsche

Fresh Market Specialty Pepper - Bill Tietjen, RCE of Warren County

Fall Cole Crop's Variety Trial - Dr. Mel Henninger, RCE, Specialist in Vegetable Crops

Controlling European Corn Borer in Peppers with Companion Plantings - Dr. George Hamilton, RCE Specialist in Pest Management

Evaluating Sweet Corn Varieties for Northern New Jersey - Raymond Samulis, RCE of Burlington County

Updating Your Crop Insurance Program- Kris Smolenski, RCE of Salem County

SEE TWILIGHT MEETING ON PAGE 2

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged slightly above normal, averaging 66 degrees north, 68 degrees central and 69 degrees south. Extremes were 86 degrees at Canoe Brook on the 10th, and 48 degrees at Charlotteburg on the 11th. Weekly rainfall averaged 0.29 inches north, 0.67 inches central, and 1.02 inches south. The heaviest 24 hour total reported was 2.71 inches at West Deptford on the 5th to 6th. Estimated soil moisture, in percent of field capacity, this past week averaged 94 percent north, 91 percent central and 87 percent south. Four inch soil temperatures averaged 66 degrees north, 68 degrees central and 70 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/11/ 6


WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD TOT	BASE50 DEP	MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP			
CANOE BROOK	.29	26.49	-.67	86	54	68.	3	2965	577	87
CHARLOTTEBURG	.25	30.01	2.58	81	48	65.	3	2510	612	85
FLEMINGTON	.33	31.34	5.29	82	53	66.	0	2819	369	90
NEWTON	missing									
FREEHOLD	.60	28.40	3.03	85	50	67.	0	2908	316	85
LONG BRANCH	.65	27.48	1.77	83	58	69.	2	2848	314	73
NEW BRUNSWICK	.84	25.99	.29	84	55	68.	1	3031	301	90
TOMS RIVER	.66	20.46	-5.81	85	56	68.	-1	2948	414	86
TRENTON	.59	25.80	1.45	84	57	69.	1	3088	259	70
CAPE MAY COURT HOUSE	.85	17.50	-5.24	83	60	69.	-1	3024	488	72
DOWNSTOWN	.69	23.15	-.81	84	56	69.	0	2863	25	74
GLASSBORO	2.74	26.10	1.03	82	58	69.	0	3284	468	75
HAMMONTON	.57	23.42	-1.64	85	56	70.	2	3212	395	70
POMONA	.58	25.01	2.06	83	57	69.	2	3091	463	70
SEABROOK	.67	29.16	6.18	83	58	69.	0	3491	638	74
SOUTH HARRISON	1.40	28.90	5.44	82	59	70	NA	3121	NA	NA

WES KLINE — GDD BASE 40 PINEY HOLLOW LAST WEEK 208 (Ending 9/4/06) THIS WEEK 204 (Ending 9/11/06)

* SOME CUMULATIVE VALUES ESTIMATED DUE TO EARLIER MISSING DATA

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