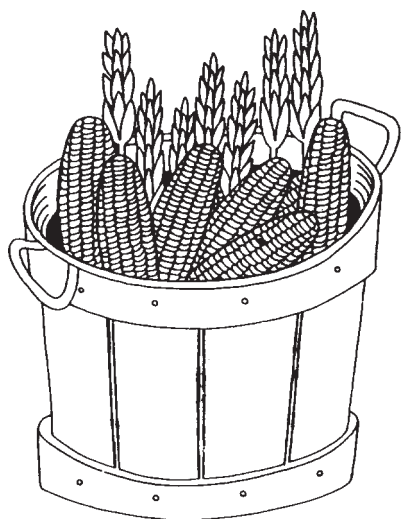


PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

AUGUST 9, 2006



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IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

Catches of **European corn borer (ECB)** adults are increasing to moderate levels in many areas, (see ECB map), with significant adult catches now occurring in northern counties. Adult ECB catches may increase further over the next few weeks and may be quite high in many areas, impacting sweet corn and other crops. ECB larval feeding should be present on whorl stage corn at this time. 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:

Allamuchy	3	Sergeantsville	3	Flanders	2
Burlington	3	Shirley	3	Folsom	2
Centerton	3	Cinnaminson	2	Newton	2
Hammonton	3	Cohansey	2	Tabernacle	2

Adult **corn earworm (CEW)** adult catches have increased slightly over the past week. Activity is at moderate levels in southern and central counties (see CEW map), and is generally low with a few higher catches in the northern counties. In general, activity is becoming more consistent, although cooler night temperatures associated with this week’s frontal system have depressed catches the last two nights. Overall catches are up. Increased trap catches from North Carolina, Virginia, and Delaware show that large scale adult emergence is underway. Some of these adults will be headed our way when southerly winds dominate our weather. The current New Jersey 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 (blue on the web version) represents a population that translates to a 4-5 day silk spray schedule, and the crosshatched area (green on the web version) represents a 3-day spray schedule.

SEE IPM ON PAGE 2

Silking Spray Schedules*

North – 5 days

Central – 3-4 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:

East Vineland	4	Indian Mills	3	Elm	2
Beckett	3	Allentown	2	Medford	2
Cinnaminson	3	Burlington	2	New Egypt	2
Downer	3	Denville	2	Springdale	2

The occurrence of **fall armyworm (FAW)** larval feeding is increasing northward in whorl and pretassel stage sweet corn. This week, feeding has exceeded 40% in whorl stage corn in Middlesex County. Northern counties have damaging populations in whorl corn as well. In southern and coastal areas, this feeding should be quite heavy now. Seedling stage sweet corn is at risk of FAW infestation, especially in coastal areas. FAW often attack young plants, so these 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. The adult **western corn root-worm** (a yellow and black beetle) often feeds on corn leaves at this time of year. Damage looks similar to early FAW injury, but does not result in severe damage to the interior of the whorl, and is not typically an economic problem.

Tomatoes

Brown stinkbugs remain active in many areas now. Adults are regularly appearing in blacklight catches. This is the time of year when adults are present and moving around in search of food and egg laying sites, and stinkbugs have been observed in many tomato fields over the past week. Feeding is increasing in field tomatoes in all counties, although not as high in northern areas. 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.

Check fields for **aphids** and **two-spotted spider mites (TSSM)**. Look at 2 complete leaves each on 5 consecutive plants in 10 random locations. Note the presence of aphid colonies on the undersides of the leaves, as well as the presence of TSSM. 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. TSSM feeding results in a whitish pin spot, or stipple, on the upper surface of the leaflet. The mites will be on the underside of the leaf until colonies become large. At this point, they will make webs and travel between leaves. Note the number and location of sites with TSSM. Consider spot treating to prevent further spread into the field.

When applying fungicides to limit foliar disease, remember to include a copper product in the rotation if a **bacterial infection** is suspected. Symptoms include necrotic spots or leaf margins (common to **bacterial speck, spot and canker**), as well as stem lesions (canker), dark fruit blisters (speck), dark scabby fruit lesions (spot), and fruit blisters with light halos (canker). Avoid fields when foliage is wet. Always work from the youngest planting to the oldest to avoid introducing bacterial pathogens to the younger plants.

Pumpkins

In addition to the existing **down mildew (DM)** infection in Cumberland County, DM was discovered at several sites in Mercer and Hunterdon Counties yesterday. This disease should be considered present in all areas of the state, and growers should react accordingly. In addition to the regular protectant fungicide program for **powdery mildew (PM)**, a fungicide with specific activity against the DM organism should be used on a weekly basis. 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.

All scouted fields in northern and central areas had surpassed the PM action threshold (2 leaves with lesions per 100 older leaves) over the past 2 weeks. Early stage PM infections appear as small circular areas of white powdery material on older leaves. Often the first infected leaves are on the inner part of the canopy. PM lesions may appear on either leaf surface. All fields should be on a protectant fungicide program with the addition of a systemic material for DM control.

Snap Beans

With higher **ECB** catches, snap beans are at risk for infestation. Monitor local blacklight catches, and if regular ECB catches are occurring, treat beans at bloom and again at pin stage. Consider 5-7 day applications as pods mature if ECB adult catches average 2.5 moths or more per night.

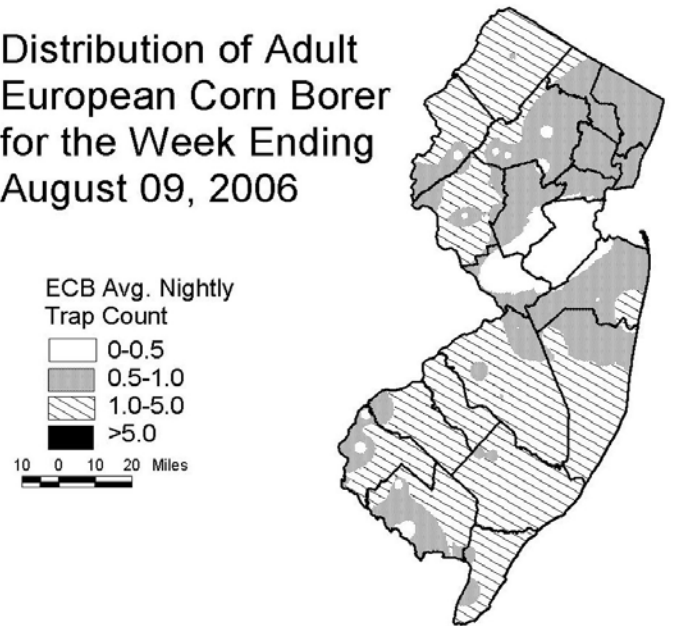
SEE SNAP BEANSON PAGE 3

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.

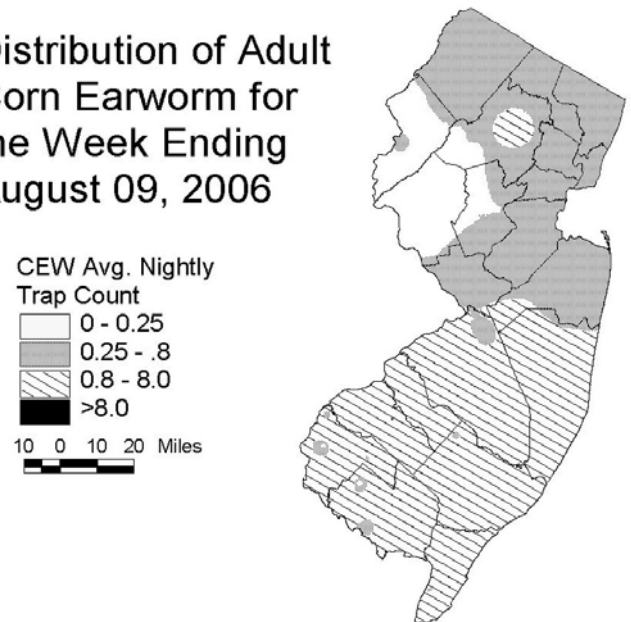
Beet armyworm (BAW) pheromone traps have been deployed from Cape May northward through Burlington County. BAW adult catches have remained stable over the past week, and as yet their numbers are quite low (less than 5/night on average). This low level will not register on the maps, and is not likely to be a threat to peppers or other crops. As BAW numbers increase, maps will be published along with information relevant to monitoring and control.

Distribution of Adult European Corn Borer for the Week Ending August 09, 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 August 09, 2006



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

Pest Notes

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

✓ **General: Beet armyworm** infestations in peppers has been observed in several fields during the past week. Monitor fields closely, and look for early feeding damage to the foliage in the upper canopy (early feeding may look similar to leaf roller damage, with skeletonizing of the leaves and some webbing of the newly emerged leaves). Effective materials include Avaunt, Confirm, Entrust/SpinTor, Intrepid, Lannate, and Proclaim. Note that pyrethroids are not effective against beet armyworm.

Assail 70WP is currently being replaced by a new formulation, Assail 30SG. The active ingredient, pests controlled, crops labeled, and all restrictions remain the same.

Corn Worm Pest Update

Southern states report very high numbers of **corn earworm** in sweet corn at this time. In Virginia, the percentage of corn ears infested with corn earworm is significantly higher compared to last year at this time. Moths are being caught in blacklight traps in the Mid-Atlantic States, including New Jersey, so now is the time to monitor for these pests (in corn as well as in other crops). See pages F107-F108 of the *2006 Commercial Vegetable Production Recommendations* for more information on scouting and decision making in sweet corn.

Pennsylvania reported last week that a failure to control corn earworm may have been because of insecticide resistance to pyrethroids. However, it was determined that the failure was most likely an application error (wrong timing), combined with environmental conditions (rainfall after the spray) that reduced control. Researchers in Pennsylvania do not feel there is a resistance problem with corn earworm. Further, current laboratory research by Dr. Ames Herbert in Virginia indicates that the pyrethroids are still effective against corn earworm.

All three of the important worm pests are active in New Jersey, including the **European corn borer**, the **fall armyworm**, and the corn earworm. Materials that are effective against all three include the pyrethroids, Entrust/SpinTor, Lannate, and Larvin. Refer to label for all rates and restrictions.

Also, Dr. W. Kline (Cumberland County Agricultural Agent) reports that several growers have had problems controlling **sap beetles** on corn with either diazinon or Warrior. The pyrethroids (Asana, bifenthrin, Mustang, Warrior) have generally been effective against sap beetles, and so far there have not been any reports of insecticide resistance by sap beetles. However, many factors affect the response of sap beetles to the insecticide treatment: better control is obtained in tight-husked

varieties because beetles are killed before they enter the ear; animal or bird damage can open the ears up, thus allowing beetles to easily enter the ear; and most important, thorough coverage of the ear silks is critical because the beetles enter along the silk tubes. The spray must be applied on the silk before the sap beetles forage in the silk and enter the ear - once the beetle is in the ear, control can no longer be obtained. For insecticides, other than diazinon or the pyrethroids, only Lannate and PennCap-M are labeled for sap beetle control in sweet corn. Again, thorough coverage of the silk *before* beetles enter the ears is critical for effective control of this pest. □

DISEASES FROM PAGE 5

(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. varieties. 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*. □

Vegetable Disease of the Week

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



Mosaic virus causing uneven ripening (green islands or netting) on pumpkin fruit.

Vegetable Disease Update

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

✓ **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 – Bacterial Wilt** – Symptoms of Bacterial wilt are beginning to show up in Cucurbit crops. Symptoms of Bacterial wilt will vary depending on crop. In general, plants may wilt during the day in hot weather and ‘recover’ during cooler parts of the evening and morning. Margins and interveinal areas of leaves become necrotic which cause leaves to appear ‘scorched’. Healthy green plants turn chlorotic with time and infected plants eventually collapse and die exposing fruit to sunscald injury. Cutting through stem tissue at the base of infected plants often reveals a coppery-tan color where the bacterium causes the vascular tissue to ‘plug up’. Control of Bacterial wilt begins with controlling **striped and spotted cucumber beetles** which vector the pathogen early in the growing season as plants emerge. Late-season beetle control will remain important as fruit begins to mature. Late-season beetle feeding may cause injury to stems ruining aesthetic quality. For more information on cucumber beetle and Bacterial wilt control please see the *2006 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Cucurbits – ‘White speck’ of Pumpkin** – also known as Microdochium or Plectosporium blight causes small, distinct lesions on infected vines, petioles, leaves, handles and fruit (see VDOW). Symptoms include light tan to pure white ‘spindle-shaped’ lesions that have a dry, scabby appearance. These small ‘white specks’ often coalesce to form large, dry scabby whitish-tan areas on

infected plant parts. Heavy vine infection can lead to complete defoliation and handle and fruit infection can ruin aesthetic fruit quality. Control of White speck begins with proper rotations with crops other than cucurbits. Maximum coverage with fungicide applications is necessary for control of White speck. For more information on control please see the *2006 New Jersey Commercial Vegetable Production Recommendations*.

✓ **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*.

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

✓ **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

SEE DISEASES ON PAGE 4

Recycle Your Drip Irrigation Tape Year-Round

If you're looking for a cost effective way to recycle your drip irrigation tape then look no further. The Cumberland County Improvement Authority (CCIA) will continue to collect and recycle drip tape generated by New Jersey farmers in 2006.

This year-round agricultural plastics recycling program, started as a pilot project in 2005 through a grant provided by the New Jersey Departments of Agriculture and Environmental Protection, has been modified for 2006.

Mulch film, silage bags, peat moss bags and other agriculture plastics will *no longer be accepted*. Quality control of the drip tape is the most important variable to a successful recycling program. Here are some guidelines to follow:

- Once the drip tape is removed, be sure to remove as much of the contaminants as possible (dirt, water, plant material, etc.). Excessive contaminants will cause the material to be rejected at the collection site. Minimizing these contaminants will lower your recycling costs.
- Drip tape should be rolled up and tied with *only* drip tape.
- Keep the material as dry as possible because moisture will add to the weight of the material and increase the cost of recycling to the farmer.
- Keep the drip tape as clean as possible - it will save you money on recycling costs.
- *Do not* place any other material in the collection bin except drip tape. If other material is commingled with the drip tape, the entire load will be rejected for recycling.

SEE RECYCLE ON PAGE 7

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much above normal, averaging 80 degrees north, 82 degrees central and 83 degrees south. Extremes were near 100 degrees at Toms River on the 2nd and 4th, and 60 degrees at Newton on the 6th. Weekly rainfall averaged 0.22 inches north, 0.16 inches central, and 0.00 inches south. The heaviest 24 hour total reported was 0.48 inches at Newton on the 3rd to 4th. Estimated soil moisture, in percent of field capacity, this past week averaged 72 percent north, 55 percent central and 43 percent south. Four inch soil temperatures averaged 79 degrees north, 81 degrees central and 82 degrees south.

Weather Summary for the Week Ending 8 am Monday 8/ 7/ 6

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
CANOE BROOK	.18	20.18	-1.58	99	62	82.	9	2249	536	62
CHARLOTTEBURG	.18	20.74	-1.20	94	61	79.	8	1902	561	65
FLEMINGTON	.06	25.97	4.92	97	62	81.	8	2145	386	64
NEWTON	.48	21.22	1.05	95	60	78.	6	1671	111	71
FREEHOLD	.35	19.23	-1.21	98	61	82.	8	2187	305	63
LONG BRANCH	.23	19.30	-1.11	99	66	83.	9	2106	303	34
NEW BRUNSWICK	.20	20.14	-.33	98	63	82.	8	2281	314	69
TOMS RIVER	.00	16.41	-4.61	100	63	83.	10	2200	397	29
TRENTON	.00	20.91	1.36	97	66	82.	6	2322	269	36
CAPE MAY COURT HOUSE	.00	12.69	-5.43	96	65	83.	7	2218	292	26
DOWNSTOWN	.00	16.88	-2.27	96	62	82.	7	2083	18	36
GLASSBORO	.00	17.56	-2.56	97	68	83.	8	2474	436	36
HAMMONTON	.00	16.11	-4.07	99	64	84.	8	2398	360	36
POMONA	.00	17.70	-.60	98	64	83.	9	2275	373	27
SEABROOK	missing									
SOUTH HARRISON	.00	21.68	2.79	96	66	83	NA	2440	NA	NA
WES KLINE — GDD BASE 40	PINEY HOLLOW LAST WEEK 272 (Ending 7/31/06) THIS WEEK 296 (Ending 8/7/06)									

* SOME CUMULATIVE VALUES ESTIMATED DUE TO EARLIER MISSING DATA

2006 Introductory Greenhouse Short Course:

**Design and Operation of Greenhouse,
High Tunnel and Nursery Systems**



**Rutgers Agricultural Research and
Extension Center (RAREC)
121 Northville Road, Upper Deerfield, NJ
Thursday, September 28, 2006**



8:30 am	Registration
9:00 am	Greenhouse Heating - A.J. Both, Specialist in Controlled-Environment Engineering
9:45 am	Container Media and Nutrition Management - Gladis Zinati, Specialist in Nursery Management
10:30 am	Break
10:45 am	Greenhouse Ventilation and Cooling – A.J. Both
11:30 am	Irrigation Management for Container Grown Nursery Crops - Gladis Zinati
12:15 pm	Lunch
1:15 pm	Overwinter-Hardening and Dehardening Management Practices - Gladis Zinati
2:30 pm	Edible Greenhouse Crops and Their Production Systems - Wes Kline – Cumberland County Agricultural Agent
3:15 pm	Break
3:30 pm	High Tunnel Production Systems – A.J. Both and Wes Kline
4:15 pm	Disease Management in High Tunnels – C. Andrew Wyenandt – Specialist in Vegetable Pathology
5:00 pm	Adjourn

Pre-registration is required. Cost for the course is \$100 per person. The registration deadline is Friday, September 22, 2006 and no refunds will be issued after that date. Contact Donna Dugan, RAREC, at 856-455-3100 X4102 for additional information or directions to the short course.

Additional one-day greenhouse short courses may be scheduled in October and/or November if sufficient registration is obtained for this session.

RECYCLE FROM PAGE 6

Collection Site Information:

Date: Collection runs year-round

Cost: \$30 per ton

Location: Cumberland County Solid Waste Complex

169 Jesse Bridge Road, Deerfield, New Jersey

Located off Route 55, Exit 29 (Sherman Ave., Route 552)

Time: Monday-Friday 7:30 a.m.-3:30 p.m. (Saturday by appointment only)

Contact: Dennis DeMatte, Jr., Recycling Coordinator, CCIA

Phone: 856-825-3700

- When entering the Solid Waste Complex, identify the material as drip tape. This is necessary since the CCIA also has a nursery and greenhouse film collection program and the drip tape must be stored in a separate area.
- Vehicles used to transport the drip tape are not required to be licensed by the NJDEP so long as the drip tape is transported directly to the collection site.
- Prior to delivery of the drip tape, all growers *must* establish an account with the CCIA or utilize a licensed solid waste hauler.

Additional questions regarding the recycling of plastics generated in agriculture contact Karen Kritz, NJ Department of Agriculture, 609-984-2506 or e-mail Karen.Kritz@ag.state.nj.us. □

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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.

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