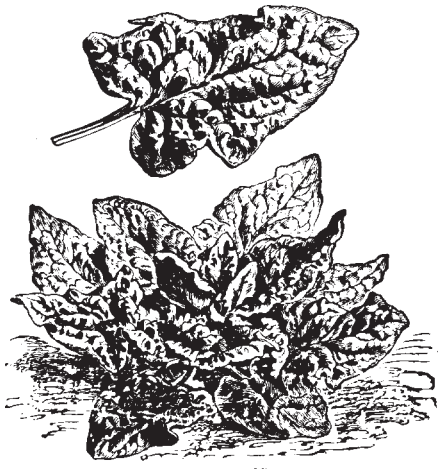
RUTGERS COOPERATIVE RESEARCH & EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION $1.50 SEPTEMBER 27, 2006



INSIDE

E. Coli Outbreak in Spinach – What did we Learn?

Wesley Kline, Ph.D., Cumberland County Agricultural Agent

The stories in newspapers, on TV and radio over the last two weeks have not been good for the produce industry. Even though the outbreak has been traced to three counties in California, local growers were impacted. Just ask anyone who had product really to sell. It affected those growers directly, but the whole industry in New Jersey was indirectly affected. We had some growers who took the lead in putting out a strong positive story about the safety of New Jersey spinach and the need to get the US Food and Drug Administration (FDA) to revise their advisory on not eating any fresh spinach. It took until September 23 for the FDA to do that. We may all agree that the FDA over-reacted, but consumer safety is their first priority. The growers worked closely with the New Jersey Department of Agriculture (NJDA), Rutgers and their state and federal legislators to get FDA rethinking their position. Now it is up to the consumers to regain faith in the food system. To help convince consumers, NJDA is placing advertising in newspapers and on radio.

What growers need to understand is this is not the last time this will happen. We had a similar situation with green onions about this same time two years ago. Growers were fortunate that the contaminated produce was traced back to the source in a short time. Growers need to be prepared for the next food borne illness.

What can you do? There is training offered each year on food safety. In 2007, there will be a session at the New Jersey Vegetable Growers meeting and additional trainings are planned during the winter. These trainings cover irrigation and cultural practices, field harvest and packing, packinghouse sanitation, storage and transportation of produce, worker sanitation and hygiene and traceback. This training helps growers update their operations so they can pass a third party audit for food safety.

Some buyers on the national level have requested third party audits. Growers can expect to hear more about audits this winter from their buyers. The NJDA is set up to carry out the audits and Rutgers Cooperative Extension does training so growers know what is needed to pass.

Growers also need to know how to deal with the media when contacted. This is something that some growers do not like to do. However, it is important to get the story out about your industry. Grow-

SEE MEDIA ON PAGE 2

New Web-Based Marketing Tool for NJ Farmers

Karyn Malinowski, Ph.D., Associate Director of NJAES and Director of Rutgers Cooperative Extension

I am pleased to inform you about a new opportunity that exists for farmers statewide. Through a cooperative effort between Rutgers Cooperative Extension, the New Jersey Department of Agriculture and the Food Policy Institute a new web-based marketing tool for farmers to promote farm visits has been developed. The website, www.visitnjfarms.org, will provide farmers the ability to post information about your farms and events being held at your farms in real-time, while providing consumers the ability to search for farm operations based on location and the activities and products they offer. This website will be the first of its kind in the nation and will provide New Jersey farmers a unique opportunity to attract visitors to your farms.

Letters have been sent from the Department of Agriculture to farmers who have already expressed interest in participating in the website to help them get their farm operation information entered. If you've received the letter, please enter your information on the website in a timely manner and we encourage any other farmers that have a desire to invite the public onto your farm to register. We are planning on introducing the website to the public around the end of the month and would like to have a strong base of farms participating for the release. Please feel free to explore the website using the password "njfarm" and to forward any questions or comments to Lucas Marxen at the Food Policy Institute at 732-932-1966 x3114 or marxen@aesop.rutgers.edu. ❑

Media from page 1

ers who talked to the media about the spinach situation in a positive way are now being contacted to see if they have been able to sell product since the advisory was changed. This gives another opportunity to promote spinach and the safety of New Jersey produce. There will be media training included in the food safety sessions to help better prepare growers. ❑

Pest Notes

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

✔ **Cole crops (cabbage, etc):** Growers and ag agents report low numbers of **cabbage looper** and **diamondback moth larvae** in cabbage fields. These pests are more easily controlled before the population reaches a high level, so treat when 20% of the plants are infested with any worm species before heading of the crop, or when 5% of the plants are infested after heading. The most effective materials for the diamondback moth larvae are Avaunt, Entrust/SpinTor, the Bt's (biological insecticides) or Proclaim (pyrethroids are not effective against this pest). Obtain adequate spray coverage to ensure effective control of these pests.

✔ **Cucurbits: Squash bugs** have been causing damage in cucurbits, especially pumpkins. It is important to monitor fields closely for early detection of squash bugs, before the population builds up and before significant damage is done. These pests are very difficult to control even when the population is low, and it is recommended that your spray applications target the egg and newly hatched nymph stages. Effective insecticides for the squash bug include Asana XL, bifenthrin (Capture, etc), permethrin (Pounce, Ambush, etc), carbaryl (Sevin), and Thionex. Treatments should begin when eggs are found, and the treatments actually target newly hatched nymphs. If **aphids** are also present, Metasystox-R will control both aphids and squash bugs. Rotenone is labeled, and will control young nymphs (but is not effective on adults). Use high pressure and high volume, if possible, to ensure penetration of the plant foliage and thorough coverage of the leaf undersides, where nymphs often congregate.

✔ **Sweet Corn:** The activity of the **corn earworm** is high, likely a result of the warm evening weather conditions. Corn with green silk is still highly attractive to the earworm, and will need protective sprays to keep the ears clean. Use Asana, Baythroid, bifenthrin, Entrust, Mustang MAX, Lannate, Larvin, permethrin, SpinTor, or Warrior for effective control of corn earworm on corn. Several reports concerning pyrethroid resistance and corn earworm have circulated from other states, but recently completed bioassays show that field strains of corn earworm are *not* resistant to the pyrethroids at this time. Thorough coverage of the ear tips is very important, and the spray must be applied before the earworm enters the tip.

✔ **Spinach:** There have been several recent reports of both **worm** pests and **flea beetles** causing damage in spinach. Sevin is labeled for control of flea beetle, but will not work well against the major worm pests (**beet armyworm**, **cabbage looper**). For worms, use either a Bt, Confirm, Entrust/SpinTor, Intrepid, Lannate, Larvin, permethrin, or Proclaim. Remember to check on the days-to-harvest table on the label before you spray so that you can still harvest on time. Permethrin, SpinTor, Entrust, and Intrepid all have "1" day, but others may vary from "7" to "14" days wait from last spray until harvest. ❑

IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

Catches of **European corn borer (ECB)** adults are very low in all areas (see ECB map). ECB injury may still be found on sweet corn, but will be largely overshadowed by **fall armyworm (FAW)**. 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	1	Cohansey	1	Jones Island	1
Beemerville	1	Denville	1	Medford	1
Centerton	1	Downer	1	Port Colden	1
Chapel Heights	1	E. Vineland	1	Seeley Lake	1

Adult **corn earworm (CEW)** adult catches have increased again somewhat (see CEW map) due to warmer nights over the weekend. The present population is moderate, and activity will fluctuate with increases and decreases in night temperatures. In practical terms, this population 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 – 3-5 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:

Jones Island	9	Indian Mills	4	Elmer	3
East Vineland	5	Cedarville	3	Folsom	3
Mannington	5	Chapel Heights	3	Seeley Lake	3
Shirley	5	Chester	3	Wall	3

The occurrence of **fall armyworm (FAW)** larval feeding remains high everywhere in sweet corn, and reinfestation is occurring quickly after insecticide applications. All counties have damaging populations. 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. Evidence of prior FAW presence in sweet corn ears is often a round exit hole somewhere on the side of the ear. If a planting is not yet silking, 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 still present in many areas now. Look at 2 complete leaves each on 5 consecutive plants in 10 random locations. Note the presence of whitish pinspots 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.

In northern counties, scattered injury by the **tomato fruitworm** (larval CEW) is present in some plantings. As sweet corn acreage declines, CEW will look for alternate hosts like tomatoes. If local catches approach 10 moths per night, consider weekly insecticide applications to limit damage. 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 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.

See IPM on page 4

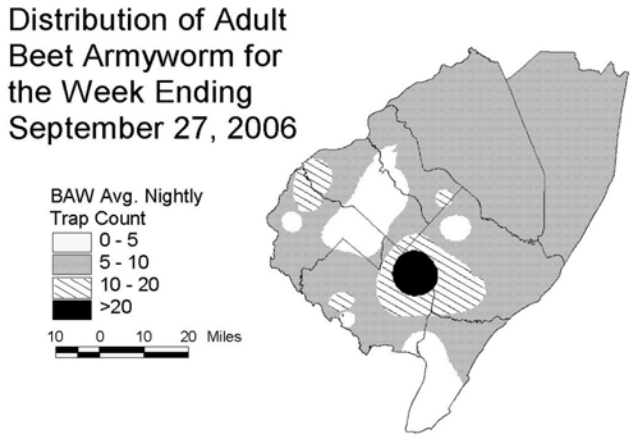
Peppers

Dominant pests in peppers now include **aphids** and **two-spotted spider mites**. 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 egg masses of **ECB** and **FAW**. Consider treating if aphids exceed approximately 120 per 100 leaves, and if spider mites are found on 10 leaves, and if 2 or more moth 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.

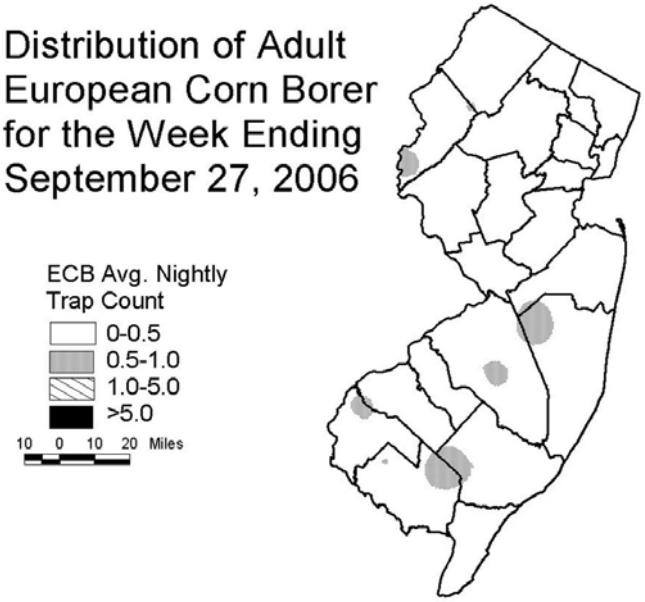
Beet armyworm (BAW) pheromone traps have been deployed from Cape May northward through Burlington County. BAW adult catches have increased further over the past week, with highest activity in the Vineland area. It is advisable to scout fields regularly for BAW at this time. First signs of infestation 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

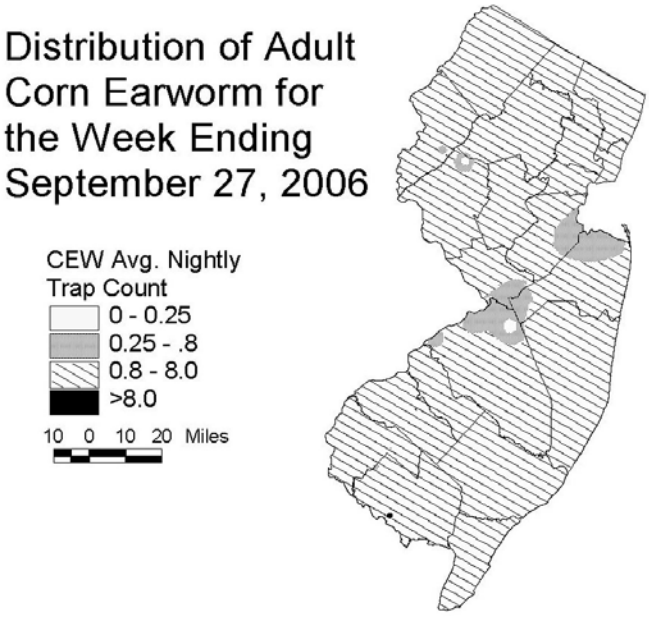
Be sure to check all fields at least weekly for the presence of **imported cabbageworm (ICW)**, **diamondback moth larvae (DBM)**, and **cabbage looper (CL),** and **BAW**. All these larvae are capable of causing significant injury on all stages of late cole crops at this time. Be sure to look at the 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.



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



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

TAPE RECYCLING FROM PAGE 5

tion 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.

For 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. ❑

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 drip tape only.
- 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.

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 collec-

See Tape Recycling on page 4

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal, averaging 63 degrees north, 65 degrees central and 67 degrees south. Extremes were 86 degrees at Seabrook on the 19th, and 42 degrees at numerous locations on the 22nd. Weekly rainfall averaged 0.08 inches north, 0.15 inches central, and 0.27 inches south. The heaviest 24 hour total reported was 0.48 inches at Hammonton on the 24th to 25th. Estimated soil moisture, in percent of field capacity, this past week averaged 88 percent north, 81 percent central and 74 percent south. Four inch soil temperatures averaged 63 degrees north, 66 degrees central and 67 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/25/ 6

	RAINFALL			TEMPERATURE				GDD BASE50		MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
CANOE BROOK	.09	28.22	-.97	84	45	64.	3	3162	589	84
CHARLOTTEBURG	.00	32.41	2.93	81	42	62.	4	2683	643	78
FLEMINGTON	.20	34.10	6.21	83	42	63.	2	3004	367	88
NEWTON *	.04	37.84	10.70	81	42	61.	3	2434	139	84
FREEHOLD	.14	30.70	3.62	85	43	65.	2	3109	305	80
LONG BRANCH	.26	30.05	2.64	81	46	65.	2	3058	310	72
NEW BRUNSWICK	.22	27.88	.35	84	45	65.	3	3242	307	88
TOMS RIVER	.00	25.26	-2.77	83	43	66.	3	3166	412	61
TRENTON	.11	27.08	1.02	83	45	66.	2	3314	260	69
CAPE MAY COURT HOUSE	.46	18.53	-5.79	83	46	67.	1	3253	462	80
DOWNSTOWN	.20	24.46	-1.04	84	42	66.	1	3082	12	73
GLASSBORO	.41	27.51	.69	84	48	67.	3	3522	486	76
HAMMONTON	.48	26.52	-.27	85	43	67.	3	3447	404	80
POMONA	.03	27.49	3.19	83	44	67.	4	3320	482	63
SEABROOK	.06	29.89	5.32	86	48	68.	3	3737	647	62
SOUTH HARRISON	.32	29.97	3.82	83	48	67	NA	3352	NA	NA

WES KLINE — GDD BASE 40 PINEY HOLLOW LAST WEEK 177 (Ending 9/18/06) THIS WEEK 182 (Ending 9/25/06)
* SOME CUMLATIVE VALUES ESTIMATED DUE TO EARLIER MISSING DATA

Plant & Pest Advisory
Rutgers' Cook College
18 College Farm Road
New Brunswick, N.J. 08901-8551

NJ AGRICULTURAL EXPERIMENT STATION
RUTGERS
COOPERATIVE RESEARCH & EXTENSION

FIRST CLASS
POSTAGE PAID
PERMIT #576
MILLTOWN, NJ 08850

PLANT & PEST ADVISORY
VEGETABLE CROPS EDITION CONTRIBUTORS

Rutgers Cooperative Research & Extension (RCRE) Specialists
Gerald M. Ghidiu, 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)
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 (732-398-5260)
Monmouth, Bill Sciarappa, Ph.D. (732-431-7260)
Morris, Peter J. Nitzsche (973-285-8300)
Passaic, Elaine F. Barbour, Agric. Assistant (973-305-5740)
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

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.

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