Rutgers New Jersey Agricultural Experiment Station - Cooperative Extension

PLANT & PEST ADVISORY

Vegetable Crops Edition $1.50 July 30, 2008

INSIDE

IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

The second **European corn borer (ECB)** flight is underway in New Jersey. Consistent catches are still only occurring in the southern counties, although light catches are more common this week in the north (see ECB map). Some low level ECB feeding has been found by IPM field scouts. For whorl stage sweet corn, consider treating for ECB when 12% or more plants show signs of the "shot-hole" type feeding on newer leaves. Remember to treat plantings as the tassels open and begin a silking stage spray program from that time forward. ECB adults will continue to lay eggs on these plants through the silking stage, and constitute a threat to the ears. A silk spray program as dictated by local corn earworm (CEW) counts will help prevent ear infestations from ECB. Consult the *2008 Commercial Vegetable Production Recommendations* for materials and rates.

The highest nightly ECB catches for the previous week are as follows:

Hammonton	3	Indian Mills	2	Belvidere	1
Centerton	2	Seeley Lake	2	Downer	1
Elm	2	Sergeantsville	2	Medford	1
Folsom	2	Shirley	2	Phillipsburg	1

Adult **corn earworm (CEW)** catches have increased in number throughout the state. Highest and most consistent catches are still in the south, with a particular hot-spot in the area around Centerton, on the Cumberland-Salem County border. Scattered, light catches are occurring as far north as Morris and Warren counties (see CEW map). We are most likely in a situation where CEW adults will increase gradually for the next 2-3 weeks. After this, the adult population may suddenly increase depending on weather patterns. Catches from North Carolina are increasing now, although Maryland and Delaware's catches are not exceptional. Large-scale migration of CEW adults is most likely still a couple of weeks away. Overall, this population is a threat to silking sweet corn. Growers should access information on CEW populations from this publication or from population maps posted on the RCE Vegetable IPM Program website: http://www.pestmanagement.rutgers.edu/IPM/Vegetable/Pest%20Maps/maparchive.htm

See IPM on page 2

IPM from page 1

Shaded areas on the map (blue on the web) indicate a 4-5 day silking spray schedule, while cross-hatched areas (green on the web) represent a 3-day silking spray schedule.

The highest nightly CEW catches for the previous week are as follows:

Centerton	11	Indian Mills	2	Hackettstown	1
RAREC	3	East Vineland	1	New Egypt	1
Burlington	2	Folsom	1	Springdale	1
Elm	2	Hammonton	1	Tabernacle	1

As of this week, **fall armyworm (FAW)** have been detected feeding throughout the state. Larval populations are still somewhat spotty. Feeding tends to be on groups of plants in individual fields with neighboring plantings often unaffected. Feeding will become more uniform in fields as FAW adults increase. FAW is capable of causing significant injury to sweet corn plants and will feed on all stages, including seedlings. For this reason it is necessary to check all pre-silking fields for signs of FAW feeding. Look for large, ragged holes and lots of caterpillar droppings in the whorl. Consider treating if 12% or more FAW injury is found alone, or in combination with ECB injury in a planting.

Silking Spray Schedules*:

North – 6-7 days

Central – 3-5 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.

Pumpkins and winter squash

Powdery mildew (PM) is starting to appear in early plantings of pumpkin and winter squash now. As fruit set occurs and fruit begin to gain size, (PM) infections will develop. This fungal pathogen first appears as a dime-sized lesion that looks like white powder. They can develop on either leaf surface as well as the petioles. While scouting, look on mature leaves, particularly those within the canopy for PM lesions. When the threshold of 1 lesion per 50 older leaves is reached, begin the regular, weekly protectant fungicide program.

Be alert for the possibility of **downy mildew (DM) infections.** As of July 25, DM has been detected on cucumbers in Cumberland County. Check Dr. Andy Wyenandt's disease update in this newsletter, and the Cucurbit Downy Mildew Forecast website (http://www.ces.ncsu.edu/depts/pp/cucurbit/forecasts/c080714.php) for details on the latest forecast and spore trajectories. DM first appears as sharp yellow lesions on the upper surface of leaves. Veins are yellow and constricted on the lower leaf surface. Shortly after this, dark sporulation occurs along veins on the lower surface beneath the lesion. This sporulation will be present when conditions are wet or very humid. In a matter of several days, significant defoliation can occur. Fungicides specific to DM and related fungi are required for good control of this pathogen. For recommended fungicide rotations for DM and PM, consult the *2008 Commercial Vegetable Production Recommendations*.

Tomatoes

When **bacterial infections** are from a field source (from infected debris, weed hosts, etc.), symptoms on tomatoes often appear as fruit are maturing. All infections 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 increasing now, with individuals present in many scouted crops. A dramatic increase in feeding was noted on high-tunnel tomatoes from the northern counties this week. The first feeding in field tomatoes was observed as well. 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. 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.

Stilt bugs have recently increased to high numbers in northern county high tunnels. These true bugs bear a resemblance to mosquitoes but are 2-3 times larger and have extremely long antennae. Feeding is similar to that caused by stinkbug nymphs. When numerous, feeding can reach economic levels and adults are quite easy to spot. They frequently rest and feed on the upper surface of fruit. Dark spots (droppings) on fruit surfaces also indicate the presence of stilt bugs. They do not often reach high numbers in the field, and only a few individuals have been observed outdoors by scouts.

See Peppers on page 3

Sweet Corn and the Sap Beetle

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

Many growers have had difficulties controlling sap beetles in sweet corn the past several weeks. Part of the reason has been the high air temperatures we have experienced. The temperatures around the ear zone are generally much higher than the ambient air temperature, as the corn canopy traps the heat much like a small greenhouse. So when the air temperature reads 95 degrees F on the thermometer, it could be well over 100 degrees F at the ear zone in the corn field. As the temperature increases at the ear zone, the sap beetles respond with a quicker metabolism and more activity. Also, the effectiveness of most insecticides, especially the pyrethroid class of insecticides, decreases as the temperatures increase for a number of reasons: volatility of the insecticide, degradations of the pesticide molecule, increased detoxification by the insect pest, increased insect metabolism, etc.

Tips to improve management of sap beetles:

1) Use sweet corn varieties that have a strong tip cover to protect the ear. This is especially true of the super sweet varieties. The stronger the cover on the tip, the more difficult for the sap beetles to penetrate it, and the more loose-husked varieties have more sap beetle damage.

2) Protect the ear tip as best as possible from caterpillar and bird or animal damage. Any damage to the silks or tip allows easy access for the sap beetles. Also, damaged tips attract the beetles, and are thus more susceptible to damage. Use a spray program that targets and is effective against fall armyworm and corn earworm to prevent damage to the ear tip. Other insects that cause tip damage are grasshoppers and Japanese beetles, so monitor fields as silks emerge for these pests.

3) For a spray program, don't rely on just continual applications of pyrethroids (Asana, bifenthrin, lambda-cyhalothrin, Mustang, etc). Growers should alternate spray applications using different insecticide classes when possible, even though there are few materials to alternate with. Penncap-M can be used for sap beetles in machine-harvested corn, and Lannate LV is labeled for sap beetles. Sevin 80S is labeled on sap beetles and Japanese beetles, and Thionex is labeled on earworms and Japanese beetles, and will also reduce sap beetle populations. These materials can be used in a management program, and should be used when the temperatures are hot.

4) Use a sprayer that will penetrate the canopy and supply adequate coverage of the ear tip. Both the sap beetle and the corn earworm enter the ear via the ear tip, so target the ear tip with your sprays. A ground rig with drop nozzles would enable an applicator to apply the pesticide directly to the tip by targeting the ear zone and thus protecting the point of entry for these pests. Use high volume, high pressure to ensure the spray is deposited at the ear zone. Once the sap beetle is in the ear tip, nothing can be done to eliminate it or prevent damage. ❑

Peppers from page 2

Peppers

Beet armyworm (BAW) pheromone traps are now in place throughout southern New Jersey. Catches are extremely low, and would not register an image on the map template. As catches increase to 5 per night or more, BAW maps will appear in this publication.

As **ECB** adult catches increase, consider preventive applications to limit larval infestations in peppers. When local blacklight catches average one or more ECB per night (shaded or cross-hatched areas on the map), it is time to commence weekly insecticide applications. Choice of materials is important. Repeated use of synthetic pyrethroid materials will result in **aphid** and possible **two-spotted spider mite (TSSM)** outbreaks. Spinosad based materials or insect growth regulators (IGR) will not have this effect. For choice of materials, check the *2008 Commercial Vegetable Production Recommendations*.

Note: Activities of the Vegetable IPM Program in northern New Jersey are supported and funded in part by the New Jersey Highlands Council.

See ECB and CEW Distribution Maps on page 4

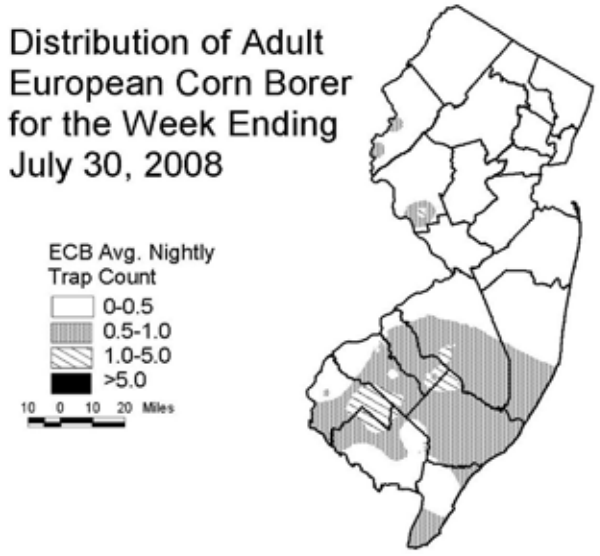
- "Just be a good neighbor. That's all. It's that simple. Respect your neighbors and they'll respect you." (Fruit and vegetable farmer, North Jersey)

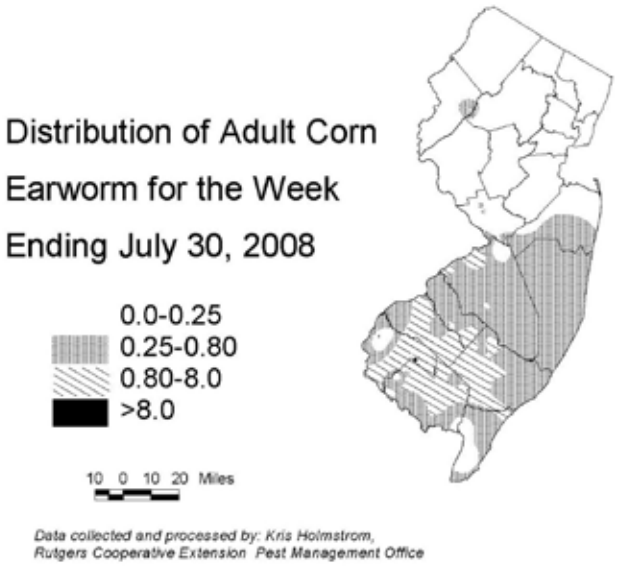
As part of the project's outreach, farmers also discussed their advice and experiences during farmer-panels at several of the winter agricultural meetings, including the State Agricultural Convention, South Jersey Nursery Growers Conference, North Jersey Tree Fruit Meeting, and NOFA-NJ's Annual Conference. A few farmers also spoke to the current class of the New Jersey Agricultural Leadership Development Program. Later this summer, a panel is planned for the New Jersey Horse Council's open meeting.

As noted in the publication, the work of building relationships and addressing rural issues falls to more than just farmers. Neighbors and municipalities also must do their part. Collected in the publication, however, are suggestions for what farmers can do – the ideas and risk management strategies described by farmers as working for them.

To request a copy of the new publication, contact the SADC at (609) 984-2504. The publication also can be downloaded from the SADC's website at: nj.gov/agriculture/sadc/farmersadvice.htm.

For more information, including how to provide feedback on the new publication, visit the SADC's website above or contact David Kimmel at (609) 984-2504. ❑





Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 73 degrees north, 76 degrees central and 78 degrees south. Extremes were 96 degrees at Pomona on the 22nd and 23rd, and 54 degrees at Charlottsburg on the 26th. Weekly rainfall averaged 2.30 inches north, 2.74 inches central, and 1.63 inches south. The heaviest 24 hour total reported was 2.43 inches at Trenton on the 24th. Estimated soil moisture, in percent of field capacity, this past week averaged 87 percent north, 82 percent central and 61 percent south. Four inch soil temperatures averaged 76 degrees north, 79 degrees central and 79 degrees south.

Weather Summary for the Week Ending 8 am Monday 7/28/ 8

	RAINFALL			TEMPERATURE				GDD	BASE50 MON	
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
CHARLOTTEBURG	3.14	20.43	.03	88	54	72.	-1	1561	440	89
NEWTON	1.47	18.25	-.44	90	58	74.	0	1789	458	84
NEW BRUNSWICK	2.64	20.95	2.01	93	58	76.	0	1879	158	91
TOMS RIVER	2.30	16.93	-2.52	92	57	77.	2	1830	268	100
TRENTON	3.27	19.73	1.62	92	60	77.	0	1962	173	100
CAPE MAY COURT HOUSE	1.46	13.95	-2.83	93	60	78.	1	1911	247	82
DOWNSTOWN	.80	17.05	-.64	93	57	77.	0	1972	171	59
HAMMONTON	2.12	14.98	-3.73	94	58	78.	1	2057	282	100
POMONA	2.69	17.58	.74	96	59	79.	3	2024	370	100
SEABROOK	1.08	16.26	-.85	92	61	78.	1	2105	297	64
SOUTH HARRISON	2.68	16.73	-2.17	91	62	78.	NA	2092	NA	NA

WES KLINE -- GDD BASE 40 PINEY HOLLOW
LAST WEEK 165 (Ending 7/21/08)
THIS WEEK 263 (Ending 7/28/08)

Rutgers NJAES Tomato Tastings
North and South

Annual RAREC Tomato Tasting, Vegetable Twilight Meeting and Research Tour

Tuesday, August 12, 2008, 5:00 – 8:00 PM
Rutgers Agricultural Research & Extension Center
121 Northville Road, Bridgeton, NJ (Upper Deerfield)

We will tour the following research plots and have presentations by the investigators:

TOMATO TASTING

Tomatoes being grown for evaluation at the center will be available for tasting surveys beginning at 5PM to 6PM before research field tours. Michelle Casella, Wes Kline and Jack Rabin.

EARLY HYBRID TOMATOES

The New Jersey Vegetable Growers Association sponsored this research to evaluate early commercial hybrids for flavor and yield. This study is in its second season. Michelle Casella, Wes Kline and Jack Rabin.

FRESH MARKET TOMATO BREEDING PROGRAM

The Rutgers Fresh Market Tomato Breeding Program is focusing on new, adapted semi-determinate varieties that feature earliness, uniform ripening and size, enhanced internal color, good flavor profile, and high overall yield/quality. The summer 2008 nursery includes approximately 120 breeding lines, some of which are nearing final selection for entry into performance trials. Tom Orton.

PEPPER PHYTOPHTHORA STUDIES

Dr. Andy Wyenandt continues to evaluate new breeding material and varieties for tolerance to phytophthora which is the number one disease problem in New Jersey peppers. Andy Wyenandt and Wes Kline.

PEPPER VARIETY TRIALS

New Jersey is the 5th largest pepper producing state in the nation and keeping up with the latest varieties for yield, quality and disease resistance is important for farm production. Variety research trials will be presented on this tour. Wes Kline and Andy Wyenandt

PUMPKIN VARITEY TRIAL

Growers will have the opportunity to see small/pie type pumpkin varieties in this year's trial. Results will be available in the Fall of 2008. –Michelle Casella and Ray Samulis.

Pesticide Recertification Credits have been requested for this meeting. Hope to see you!!

This is your opportunity to have plant, insect, disease, or weed samples identified.

For directions go to:
http://njaes.rutgers.edu/centers/quickinfo.asp?RAREC

"A Taste of Jersey Fresh™"

GREAT TOMATO TASTING

August 27, 2008
3:00 pm – Dusk (Rain or Shine)
The Snyder Research and Extension Farm and The Melda C. Snyder Teaching Garden
Pittstown, NJ (Hunterdon County)

- **Over 80 tomato varieties, including the Rutgers University Ramapo tomato**
- **Culinary herbs & "chef's" gardens with a tasting of basil varieties**
- **Perennial beds of deer tolerant landscape plants**
- **Plants that can attract beneficial insects**
- **Jersey Grown™ daylilies**
- **Columnar varieties of fruit trees for the home landscape**
- **A special presentation by canine search and rescue teams**
- **Wagon tours highlighting today's NJAES agricultural and horticultural research available throughout the event**
- **Rutgers Cooperative Extension faculty, staff and Master Gardeners to answer your gardening questions**
- **Door prize drawings throughout the event!**

Registration – $5.00 per person, free for children under 10

Please RSVP (908) 713-8980

For directions go to:
www.snyderfarm.rutgers.edu

New Handbook on Using Buckwheat as a Cover Crop

Thomas Björkman, Cornell University

Reprinted from The Vegetable & Small Fruit Gazette, July 2008, Penn State University Extension

Buckwheat has been used to suppress weeds on Northeastern farms for 400 years. The practice had been used here for a century and a half by the time George Washington and Thomas Jefferson corresponded with each other about how well it worked on their farms. It still works.

On modern farms we have different tools, a different market, and different economic constraints; so buckwheat will be useful in different situations. In this brochure we describe situations where buckwheat has high value on 21st century farms because it controls weeds economically and in a way that adds significantly to the other weed control practices that are available.

A new handbook for using buckwheat as a cover crop in the Northeast has been developed by a team at Cornell as the result of a SARE-funded project. This handbook is based on extensive grower surveys, gathering knowledge held by successful growers, material printed in obscure old extension and farm publications, as well as original research to answer new questions. The instructions have been tested by cooperating farmers to make sure they work.

To keep the brochure short, we have included only what growers need to do and why. The substantial research and testing that went into determining the right procedures are not included, but there is a lot of experience behind every recommendation.

The brochure is designed to fit in a pocket, with a cover that can handle life in the barn or the truck, because that is where users will want the information that's in it. The specific instructions for the four main scenarios are also provided on water-resistant cards that can be kept in a place that's convenient for checking the next step during the season.

Hard copies are available from our online bookstore for $2.50 to cover postage and handling. https://www.nysaes.cornell.edu/store/catalog/product_info.php?products_id=41

Electronic versions (PDF and HTML) of the Handbook are available as part of a new website on using cover crops in vegetable production.

http://www.nysaes.cornell.edu/hort/faculty/bjorkman/covercrops/buckwheatbrochure.html. ❑

Publication Offers Advice for Farmers on Avoiding Conflicts with Neighbors & Towns

More than 50 farmers share their advice and experiences on how to avoid conflicts and maintain good relationships with neighbors and municipalities in a new publication developed by the State Agriculture Development Committee (SADC).

Rutgers NJAES Cooperative Extension collaborated with the SADC on the publication, along with the New Jersey Department of Agriculture, New Jersey Farm Bureau, and NOFA-NJ, as part of a grant project funded by the Northeast Center for Risk Management Education.

"Although New Jersey has one of the strongest right-to-farm laws in the nation, oftentimes the best right-to-farm protection is knowing how to prevent disputes from happening in the first place," said Agriculture Secretary Charles M. Kuperus, who chairs the SADC. "Experienced farmers are a great source for advice on how to do that. Therefore, we were pleased to compile many of their suggestions in this new publication so that their fellow farmers may benefit from their advice and lessons learned."

"Farmer-to-Farmer Advice for Avoiding Conflicts with Neighbors and Towns" features a wide range of advice collected from growers during interviews last fall. Underlying the suggestions were several common themes – that maintaining good communication, giving appropriate consideration to neighbors and municipalities, and being actively involved in the community are key to fostering good relationships.

Farmers shared their suggestions anonymously. A sampling of the advice included:

- "It's important to have built a relationship before a controversial issue arises." (Fruit and vegetable farmer, Burlington County)
- "When I need to work late, I work late. But when I know I can end early or I know someone's having a picnic or it's a holiday, I'll try to end early." (Grain farmer, Central Jersey)
- "We try to keep our farm clean and presentable on all borders. (Fruit farmer, Gloucester County)
- "Know your rights but be reasonable and keep an open mind to all sides of an issue. Don't waste your time over trivial matters that are easily handled. A stubborn farmer is looked at negatively." (Livestock farmer, Monmouth County)
- "Creating a partnership with the town helps when it comes to complaints. The town may actually get the call first and be able to defuse a potential situation by explaining the issues to the caller." (Diversified farmer, Somerset County)
- "You're more than just a farm – you have to act and behave in way that makes others believe you're an asset to the community and belong in the community." (Nursery farmer, North Jersey)

See Avoiding Conflicts on page 3

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