

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

AUGUST 27, 1997

Notes from Cedar Meadow Farm No-Till Vegetable Field Day - Part I

Submitted by Rick VanVranken, Atlantic County Agricultural Agent

There have been numerous questions following increasing publicity about producing vegetables with minimum or no-till production systems. On-going work in New Jersey has produced mixed results to date. The following are excerpts from an article by Brian Caldwell, Cornell Cooperative Extension Educator, CCTT Vegetable and Small Fruit Program, Owego, NY on the Veg-Prod E-mail Discussion Group. It discusses some observations made at a field day on 7/19/97 near Lancaster at the farm of one of the area's leading no-till proponents.

This field day was held at Cedar Meadow Farm in Lancaster County, PA. The farm's owner, Steve Groff, is an outspoken proponent and accomplished practitioner of using no-till growing methods in combination with cover crops. Steve feels that the cover crops and no-till technology work well together to preserve soil and reduce overall pesticide use on his hilly land. Following are my notes from the field day.

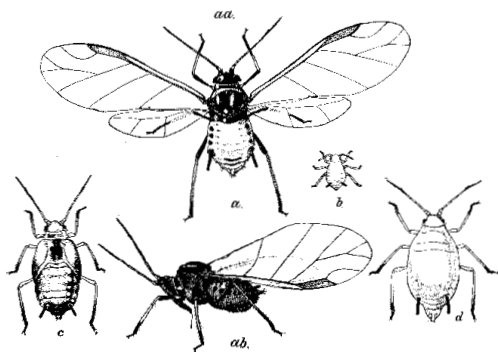
Tim Bowser, executive director of the Pennsylvania Association for Sustainable Agriculture, and Steve Groff, owner of Cedar Meadow Farm, welcomed the group of about 100 attendees.

Cedar Meadow Farm is a diversified operation with beef cattle, hay, wheat, other small grains, corn, and soybeans, plus fresh market tomatoes and pumpkins and processing tomatoes; 70 acres total. You can get more details about the farm at his website—www2.epix.net/~cmfarm/ "New Generation Cropping Systems" or about his ideas on no-till vegetable production from his video —"No-till Vegetables; A Sustainable Way to Increase Profits, Save Soil, and Reduce Pesticides" available from: Cedar Meadow Farm, Steve and Sheri Groff, 679 Hilldale Rd., Holtwood, PA 17532.

For the demonstration, several stations were set up. In addition to the ones below that I visited, there were stations for 15" Corn Row Spacing Trial; Crop Residues; and Global Positioning Systems. In the afternoon, there were several equipment demonstrations and more talks. The fact that noted researchers and equipment were all on hand made this a remarkable field day.

Soil Quality—The session on soil quality was given by Joel Gruver of the University of Maryland. He did a striking visual demonstration of

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soil aggregate stability, a key aspect of soil quality. He took soil chunks, approximately 1 cu. inch, which had been air-dried, and dropped them into glasses of water. One was from a conventionally-tilled veg field, one from a field that had been no-tilled for 11 years, and one that had been a pasture for 25 years and no-tilled for 5 more.

A few minutes later, the results were clear to see. The chunk from the conventionally-tilled field disintegrated as water filled its pores and air rushed out. The other two chunks retained their basic forms, with a small bit of soil shed off their outsides. The lower aggregate stability of the tilled soil leads to conditions we've all seen—1) crusting, when rain destroys aggregates and washes them into soilpores; 2) poor rain infiltration and runoff; 3) rain ponding on the surface; 4) droughty soils; plus, 5) the soil does an overall poorer job of holding and/or breaking down applied chemicals and nutrients.

The less tilled systems foster better aggregate stability, as do manure applications, sod crops, and cover crops. Silty soils have naturally poorer aggregate stability. Soil fungi are very susceptible to tillage. Untilled soils have up to 10 tons/acre of fungal biomass, a number that diminishes by 90% under regular tillage. Organic matter applied to the soil surface can move into the soil profile in at least 2 ways—1) soluble fractions leach under rainfall; 2) earthworms and other soil animals incorporate it.

The article will continue in Part II in next week's issue. □

The Annual Cream Ridge Twilight Fruit Meeting and Breeding/Variety Showcase

Thursday, September 11, 1997

Registration begins at 3:30 p.m.

Tours start promptly at 4:00 p.m.

Rutgers Fruit Research and Extension Center

283 Route 539

Cream Ridge, NJ

- Includes:** ❖ Plasticulture strawberry variety and cultural update
❖ Small and Tree Fruit Research Plot Tours
❖ Small and Tree Fruit Breeding/Variety Showcase
❖ Weed, Disease, and Insect Diagnostics
❖ "Jersey Fresh" Direct Marketing Update
❖ Twilight Update with Question and Answer Period
❖ Pesticide Recertification Credits
❖ Commercial Trade Exhibits
❖ Dinner Provided

Please RSVP by September 4, 1997 (necessary for dinner arrangements). If you have any questions, comments, or suggestions, and to RSVP, please contact: Dr. Joseph A. Fiola, Program Coordinator, Rutgers Fruit Research and Extension Center, 283 Rt. 539, Cream Ridge, NJ 08514, 609-758-7311 (FAX: 609-758-7085)

It was a Train, not a Hurricane!

Rick VanVranken, Atlantic County Agricultural Agent

Last Wednesday I went to bed to the sound of a steady downpour, a much needed soaking rain after a long dry and hot spell. I awoke to flooded fields around my house and found the roads to my Mays Landing office blocked by water streaming across or down the streets. A freak storm had been "training" across southern New Jersey all night in a narrow "track", dumping 10 to 15 inches of rain in a path about 10 miles wide from Cedarville on the Delaware Bay, to Tuckerton on the Atlantic. The swath cut a diagonal across Atlantic County, with the outlying areas only 10 miles from the "track" getting 3.5 to 6 inches from the same storm.

Newly seeded fields in East Vineland were washed out. Pepper fields, if not laid over, can expect to see aerial *Phytophthora* hitting within the week. And a lot of topsoil was moved to neighboring fields, streets and streams. Tomatoes and melons soaked up too much water and cracked.

Farms in the center of the storm faced more severe erosion, with gullies up to 18" deep on one farm I visited and flooded blueberry fields that took a week to get ba to normal levels. Drainage ditches were stretched beyond capacity and dams were blown on a couple of reservoirs.

Any farmers in the southern counties experiencing damage from this storm should report it to the Farm Service Agency (FSA). A disaster declaration is being sought and we expect some form of assistance such as low interest emergency loans, and possibly non-insurable crop assistance, but the FSA needs your estimates of damage within 15 days.

They said it wasn't a hurricane, because luckily, there was no wind with this storm. The devastation would have been much worse. And because it had been so dry beforehand, soil water levels are already returning to normal. I had been puzzled in the past by a few oddly placed roadsigns warning "Road May Be Flooded". I hope never to see that much water in Atlantic County again, but now I know why! □

Vegetable Crops Diseases

Stephen A. Johnston, Ph.D., Plant Pathology

- ✓ **Bean:** Observe fields for the presence of **rust**. Once observed, apply Bravo as a foliar spray every 7 days.
- ✓ **Cole Crops:** Maintain applications of Bravo every 7-10 days for the control of **downy mildew** and **Alternaria leaf spot**.
- ✓ **Carrot:** Maintain applications of Bravo or Benlate every 10 days for control of **leaf blights**.
- ✓ **Cucumber:** Maintain applications of Bravo + Benlate for control of **foliar diseases** every 7 days once vines begin to run. In fields with a history of **Phytophthora blight**, add a copper fungicide.
- ✓ **Eggplant:** Maintain applications of a copper fungicide + maneb plus a spreader sticker every 7-10 days for the control of **Phytophthora** and **Phomopsis fruit rots**.
- ✓ **Leek:** Maintain applications of Bravo every 10 days for the control of **purple blotch**.
- ✓ **Lettuce:** Shortly after thinning, apply Ronilan or Rovral as a directed spray to the base of plants and surrounding soil for control of **drop (Sclerotinia)**. Repeat in 10 and 20 days. Rovral will also provide control of **bottom rot (Rhizoctonia)**.
- ✓ **Parsley and Dill:** **Damping-off** caused by **Pythium** is present in young fields following the recent rains. Be sure to apply Ridomil Gold as a soil surface application over the row at seeding for control.
- ✓ **Pepper:** Maintain applications of a copper fungicide + maneb with a spreader sticker every 7-10 days for the control of **Phytophthora blight**. Several fields have misshapen fruit, which makes the fruit unsuitable for fresh market. This is the result of **poor pollination** during the hot, dry period a few weeks ago. Subsequently, produced fruit should have a more normal shape due to the recent cooler night temperatures.
- ✓ **Pumpkin & Squash (Winter):** Maintain applications of Bravo + Benlate + a copper fungicide every 7-10 days for the control of **foliar** and **fruit diseases**. Observe the undersides of leaves for the presence of **powdery mildew**. Once observed, add Bayleton and repeat once in 14 days for control.
- ✓ **Spinach:** Apply Ridomil Gold as a soil surface application immediately after seeding for the control of **damping-off** and early season control of **blue mold** and **white rust**.
- ✓ **Squash (Summer):** The aerial phase of **Phytophthora blight** is present in several fields following the recent rains. The new growth of infected plants completely wilts and dies. A black, girdling lesion is present at the base of leaf petioles of leaves near the growing point as well. Apply Ridomil/Bravo as a foliar spray every 14 days for control. Observe young fields for the presence of **powdery mildew**. Once observed, apply Bayleton as a foliar spray; and repeat once in 14 days.
- ✓ **Tomato:** Maintain applications of Bravo every 7-10 days for control of **foliar** and **fruit diseases**. Growers often wonder if a rain within 1-2 days of a fungicide application washes off enough fungicide that a repeat application is needed earlier than 7-10 days. The answer is no with Bravo. Bravo has a spreader-sticker adjuvant formulated into the fungicide that enables it to stick to the plant during a rain. The key is to allow the fungicide to dry on the foliage prior to the rain. □

Pest Notes

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

✓ **Bean:** Delaware reports that **leafminers** have been attacking the leaves of snap and lima beans. In general, treatments for **leafminers** are not recommended for several reasons: snap beans are a short season crop, and **leafminers** do not build up quick enough to cause significant damage. Also, based on data from Florida, **leafminer** damage must be very high (almost to the point of leaves dropping off the plant because of **leafminer** damage) before insecticides are justified, which has never occurred in New Jersey. If growers find **leafminer** damage, it is best to closely monitor the damage, and apply an insecticide that is effective against **leafminers** only if the damage is severe enough to cause leaf drop. Diazinon and dimethoate are both labeled on snap beans (dimethoate is probably more effective than diazinon for **leafminer** control on snap beans).

Also, potato **leafhopper** damage is significant in snap beans in some areas of the state. This pest can quickly cause significant yield loss, and control methods should be considered before the threshold is reached (see page 68 of the [1997 Commercial Vegetable Production Recommendations for New Jersey](#) for detailed information on **leafhopper** thresholds and control).

✓ **Cucurbit:** Heavy infestations of melon **aphids** have been found in several cucurbit fields in the southern areas of Cumberland County. These pests suck the sap from leaves and stems, causing the leaves to curl under and eventually to dry up and drop off the plant. Yields decrease if the infestation continues to cause damage. Melon **aphids** are difficult to control with insecticides used against other pests. Lannate LV (1.5 - 3.0 pt/acre) is still effective against this pest. Thorough coverage is important, and applications should be made before the leaves curl under. Use high volume with drop nozzles for best results. □

Vegetable IPM Update

Kristian E. Holmstrom, Vegetable IPM Program Associate and Sally Walker, Vegetable IPM Program Associate

◆ Cole Crops

Diamondback moth larvae (DBM), imported cabbageworm (ICW) and cabbage looper (CL) are all active in plantings in northern and central counties. Fields should be scouted weekly as re-infestation is occurring rapidly. Particular attention should be given to young plantings as they are less able to tolerate the heavy feeding that may now be taking place. **DBM** and **ICW** seem to have a preference for the tender leaves near the centers of plants, so these areas should be checked regularly. **Whitefly** populations were high in several plantings in broccoli and Brussels sprouts in Hunterdon County this week. This pest will not be controlled with B.t. formulations, so where present other insecticides should be used for insect control.

◆ Pepper

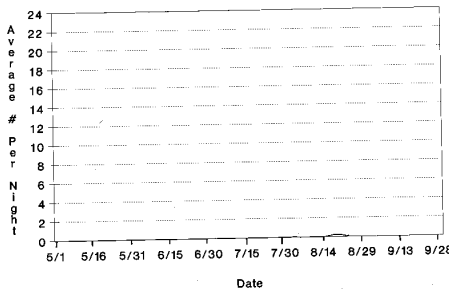
In some commercial fields in Cumberland and Gloucester counties **cabbage loopers (CL)** were found feeding in the canopy. **Hornworm eggs** (spherical,

green, and singularly laid), were also easily found on leaves, and hatch should occur by the end of this week. **Hornworms** are easily controlled, but they can feed heavily in the foliage and may be confused with **beet armyworm (BAW)** feeding. **Beet armyworms** are showing up in late plantings in Cumberland County, and can be a serious fruit and foliage pest in some areas. For best control make sure to identify what pests are feeding in the foliage.

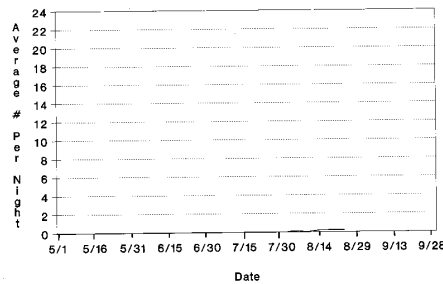
For the fruit, detection of larval pests is difficult and usually too late for economic control. Blacklight and pheromone trap counts of the major fruit pests of pepper are used to indicate potential infestations. Trap counts of **European corn borer (ECB)** are on the decline and larval feeding should be peaking this week and into next. **Fall armyworm (FAW)** pheromone trap counts have increased dramatically in most of the southern counties. In addition, a **corn earworm (CEW)** was found in fruit in an unsprayed pepper field even though trap catches have generally been low. As sweet corn plantings decrease, peppers will increasingly be a target for **CEW**. Consequently, the major fruit pests, **ECB, CEW, and FAW** are all potential problems for peppers at this time. **BAW** may also be a problem in certain areas, but fields can be scouted for this pest.

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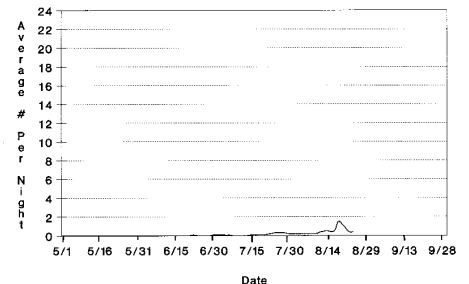
Northern NJ- CORN EARWORM (CEW)
Blacklight Trap Catches



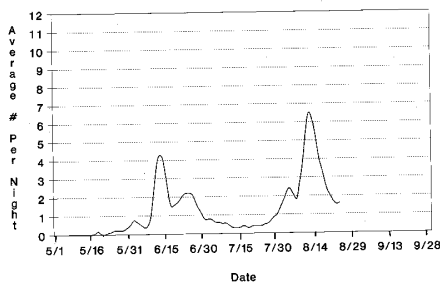
Central NJ- CORN EARWORM (CEW)
Blacklight Trap Catches



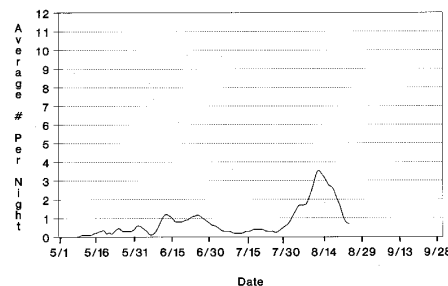
Southern NJ- CORN EARWORM (CEW)
Blacklight Trap Catches



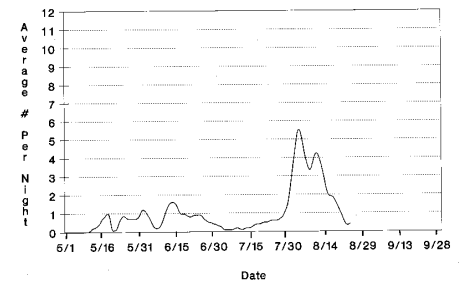
Northern NJ- EUROPEAN CORN BORER (ECB)
Blacklight Trap Catches



Central NJ -EUROPEAN CORN BORER (ECB)
Blacklight Trap Catches



Southern NJ -EUROPEAN CORN BORER (ECB)
Blacklight Trap Catches



◆ **Sweet Corn**

Corn earworm (CEW) blacklight trap catches continue to increase slowly throughout the state. **CEW** activity is lower than usual for late August. Cooler evening temperatures may be contributing somewhat to the low catches.

The highest nightly **CEW** blacklight trap catches are as follows:

Medford	3	Milltown	1	Hancocks Bdrge	1
Burlington	2	Chapel Hghts	1	Manville	1
Georgetown	2	Cohansey	1	New Egypt	1
Lawrenceville	2	Farmingdale	1	Ringoos	1

Adult **European corn borer (ECB)** activity is decreasing steadily as indicated by falling blacklight trap catches in most areas. **ECB** feeding on host crops should now be increasing.

The highest nightly **ECB** blacklight trap catches are as follows:

Little York	12	Ellisdale	4	Burlington	3
Allentown	9	Hopewell	4	Holmdel	3
Georgetown	5	New Egypt	4	Shirley	3
Phillipsburg	5	Sergeantsville	4	Woodstown	3

Pheromone trap catches of **fall armyworm (FAW)** have increased dramatically in the southern counties this week. All hosts of this pest are at high risk for infestation. Whorl stage corn should be scouted weekly for the ragged foliar feeding caused by **FAW**. Younger whorl stage plants are favored hosts. Treat plantings when 12% of the plants are infested with either **FAW** or **FAW** and **ECB** in combination.

◆ **General Sweet Corn Spray Schedule**

- Silking stage: North 5 - 6 days*
- Central 3 - 4 days*
- South 3 - 4 days*

*These are general spray recommendations for large areas of the state. Growers can increase or decrease the intervals based on their own local situations.

Weekly Weather Summary

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 93 degrees at Woodstown, on the 19th and 41 degrees at Charlotteburg on the 24th. Weekly rainfall averaged 1.62 inches North, 2.66 inches Central, and 5.43 inches South. The heaviest 24 hour total was 13.52 inches at Pomona on the 20th to 21st. Estimated soil moisture, in percent of field capacity, this past week averaged 94 percent North, 86 percent Central and 81 percent South. Four inch soil temperatures averaged 68 degrees North, 72 degrees Central and 75 degrees South.

Weather Summary for the Week Ending 8 a.m. Monday 8/25/97										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	1.96	22.29	-1.18	79	51	64.	-5	1905	-178	87
CANOE BROOK	1.71	23.46	-1.15	80	52	66.	-3	2279	184	92
CHARLOTTEBURG	1.40	24.24	-.61	79	41	62.	-4	1785	126	92
FLEMINGTON	2.01	23.57	-.15	79	51	65.	-5	1982	-167	93
LONG VALLEY	1.62	24.12	-1.51	76	50	64.	-3	1765	-92	89
NEWTON	1.03	19.81	-3.13	76	48	62.	-5	1650	-252	92
FREEHOLD	1.83	23.08	-.04	80	54	67.	-4	2261	-27	88
LONG BRANCH	2.34	22.01	-1.37	78	56	67.	-4	2182	-28	79
NEW BRUNSWICK	1.58	29.02	5.71	80	53	67.	-5	2192	-189	89
PEMBERTON	2.30	23.04	-.64	83	61	72.	1	2517	183	69
TOMS RIVER	6.35	25.53	1.61	83	54	69.	-2	2235	43	73
TRENTON	1.56	24.30	2.15	81	52	66.	-6	2167	-319	77
CAPE MAY CRT HSE	3.67	19.72	-.93	81	56	70.	-3	2325	157	83
DOWNSTOWN	5.25	22.87	1.02	80	56	69.	-3	2322	-139	82
GLASSBORO	2.54	24.53	1.72	79	55	68.	-4	2471	2	79
HAMMONTON	5.20	24.88	2.06	81	56	69.	-3	2305	-168	86
POMONA	14.16	36.20	15.16	80	54	67.	-4	2311	5	83
SEABROOK	4.99	23.93	3.01	81	57	69.	-3	2475	-30	79
ATLANTIC CTY MRNA	5.76	24.94	4.77	82	61	72.	0	2349	113	72
WOODSTOWN	2.35	20.33	-2.25	93	50	70	NA	2506	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW	Last Week		266 (Ending 08/18/97)		This Week		203 (Ending 08/25/97)			

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