

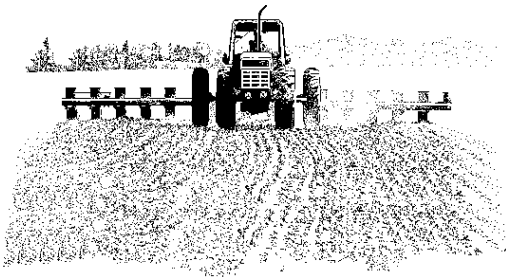
PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 4, 1997

No-Till Transplanting Trials to Begin in New Jersey

Michelle Infante, Gloucester County Agricultural Agent



Rutgers University has just received a new transplanter for vegetable research. The Subsurface Tiller-Transplanter (SST-T), is a modified Holland Mechanical Transplanter designed to work in no-till field situations. This planter was designed by Dr. Ron Morse of Virginia Tech in Blacksburg, Virginia. The SST-T allows planting in a variety of soils and plant residues. A two-row model is now being used to plant no-till vegetable trials at the Rutgers Agricultural Research and Education Center in Bridgeton, New Jersey.

Another transplanter is being designed and built by B.J. Farms in Bridgeton. This model is a modified R.J. Carousel type transplanter. We will be doing trials with this transplanter for no-till squash, melons, and pumpkins.

Both transplanters will be demonstrated at an evening twilight meeting in Salem, New Jersey on Monday, June 9, 1997. See this newsletter for the announcement.

No-till vegetable production has been successful in other states like Pennsylvania, Maryland, New York and Virginia. Growers have had yields similar to conventional systems and even increased yields with some crops when planted with no-till methods.

No-till systems can help to reduce annual weeds, soil moisture loss by reducing evaporation, and erosion by wind and water. It can increase organic matter levels in soil, and can add nitrogen to soil when legumes are used as cover crops. It is important to note that the cover crop residue must be left in the field to obtain benefits of an organic mulch. A good, thick residue from a cover crop may act like a plastic mulch. Cover crop residues can shade-out and smother emerging weed seedlings. An added benefit of organic mulches, like cover crop residues, is that you do not need to pick them up out of the field after the growing season is through.

Another benefit of utilizing organic mulches (cover crop residues) is better water infiltration through increased soil surface channels created by cover crop stems and roots. When we receive heavy rains on fields with plastic mulch, row middles flood and wash, especially on sloping fields. With no-till fields, water quickly percolates into the soil and does not run through fields, therefore decreasing erosion and in some cases preventing the spread of disease organisms, like Phytophthora, that are transported in flowing water. Research at North Carolina State

SEE NO-TILL ON PAGE 2

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Postemergence Herbicide Crop Tolerance

Bradley A. Majek, Ph.D., Weed Science

The recent extended period of cloudy weather and high soil moisture may have resulted in certain crops growing rapidly and developing a thinner than “normal” wax layer, called the cuticle, on the leaves. This thinner cuticle is more easily penetrated by postemergence herbicides. Warm temperatures during the cloudy moist period will increase the speed of growth and the thinness of the cuticle.

To reduce the risk of crop injury from postemergence herbicides this week:

1. Reduce the amount of spray additives used to the minimum labeled amount.
2. Use nonionic surfactants instead of oil concentrates when the herbicide label gives you a choice.
3. Do *not* add any surfactant, oil concentrate, or other additive if the label allows application alone.
4. Do *not* add liquid fertilizer to the spray solution, even if the herbicide label suggests it as an option.
5. Delay treatment of crops that are marginally large enough to treat according to the herbicide label.
6. Delay treatment until the crop has experienced 3-5 days of bright, clear, warm, and sunny weather before applying postemergence herbicides. The cuticle thickens when the weather turns warm, sunny, and dry. □

Weed Control in Strawberries

Bradley A. Majek, Ph.D., Weed Science

Strawberries: A SPECIAL LOCAL NEEDS label for Sinbar use on established strawberries is available in New Jersey and certain other states. The rates have been reduced compared to the old label, and are now in line with Rutgers’ original recommendations. The label limits application to plants established for a minimum of 6 months, and limits the total rate per acre to 8 ounces per year.

Use 2-6 ounces per acre per application at renovation, in late fall, and/or in early spring before the berries break winter dormancy. Do *not* exceed 8 ounces per year. Consult your Cooperative Extension Office and the new product label for additional information. □

Boron Needs of Vegetable Crops

Joseph R. Heckman, Ph.D., Soil Fertility

The majority of New Jersey soils do not supply enough Boron (B) to crops that have high requirements for this micronutrient. Vegetable crops with high B requirements include: beets, broccoli, Brussels sprouts, cabbage, cauliflower, celery, rutabaga, and turnip. These crops often benefit from B fertilization. Vegetable crops with medium B requirements include: asparagus, carrot, lettuce, parsnips, potato, radish, spinach, sweet corn, and tomato. Crops are more likely to need N fertilizer when grown on sandy soils that are typically quite susceptible to B deficiency.

Soil testing and plant analysis should be used to evaluate the need for B fertilization. While B fertilization can improve crop yield and quality, it is also important to avoid excessive application of B. Too much B fertilizer applied to sensitive crops can cause toxicity.

Crop	Boron-Deficiency Symptoms
Beets	External spotting, cracking, and canker.
Broccoli	Hollow stems or internal discoloration, brown curds.
Cabbage	Hollow stem, watery areas, heads yellow, stunted.
Carrots	Reddening of leaves, splitting of roots.
Cauliflower	Leaves curled, hollow stem, curds dwarfed, brown.
Celery	Stem cracked with brown stripes, heart blackened.
Lettuce	Stunted growth, discoloration of leaves, brittle.
Tomato	Thickened leaves, brittle leaves, fruit fails to set.
Radish	Pale roots, brittle stems, watery flesh, flecked.
Spinach	Roots dry and dark, leaves small and yellowish.

For complete information on B fertilizer recommendations, obtain Fact Sheet 873 from Rutgers Cooperative Extension. □

NO-TILL FROM PAGE 1

University, done by Jean Ristaino, showed decreased spread of *Phytophthora capsici* in bell peppers when a no-till rye-vetch cover crop system was used.

If no-till vegetable production methods can be developed to produce adequate yields without excessive inputs, this system may be a viable option for many New Jersey vegetable farmers. Plans to further research no-till vegetable systems are underway in New Jersey. For more information about this system or about the June 9th twilight meeting, contact: Michelle Infante, Gloucester County Agricultural Agent, (609) 863-0110. □

Vegetable Crops Diseases

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

✓ **Cole crops:** Some fields of collards have plants completely severed from the root system, and a distinct narrow, girdled area is present at the soil line. This is the result of **wind whipping injury**, and is not a disease. Maintain applications of Ridomil/Bravo or Aliette (14-day schedule), Bravo or maneb (7-day schedule) for prevention of **downy mildew**.

✓ **Cucumber:** Maintain applications of Bravo + Benlate when the vines begin to run, and repeat every 7-10 days for the prevention of **anthracnose**.

✓ **Cucurbits:** In recent years, more and more fields in light soils have had severe infestations of **root-knot nematodes**. Symptoms of **root-knot nematode** damage include stunted plants and excessive galling of the root system. Preplant soil fumigation will control **nematode populations**; however, for fields being planted now, an application of Vydate L just prior to planting and incorporated will also provide control. For planted fields with drip irrigation, Vydate L can be injected via the drip system for control.

✓ **Lettuce:** Some fields have plants completely severed from the root system, and a distinct narrow, girdled area is present at the soil line. This is the result of **wind whipping injury**, and is not a disease. **Drop** is present in some fields at this time. Infected plants are completely wilted, and a white mold containing small, black sclerotia is present under the leaves touching the soil. Control measures involve the application of Ronilan or Rovral shortly after thinning or transplanting, and 10 and 20 days later.

✓ **Pepper:** Maintain foliar applications of a copper fungicide + maneb for control of **bacterial leaf spot**. Applications should be made shortly after transplanting, and 1-2 more times at 7-day intervals. There have been several questions concerning types of copper fungicides to use on peppers. There are many copper fungicides available for use, and all provide activity. Newer formulations such as Kocide LF and Champ 2 Flowable have improved modifications which enhance their activity. The key factor for **bacterial leaf spot** control in peppers is that copper fungicides be combined with maneb. Copper fungicides in combination with maneb are more effective than use of copper fungicides alone. For prevention of **Phytophthora blight**, be sure to improve drainage in and around fields. Also, fill in depressions around the base of plants transplanted with water wheel transplanters. Apply Ridomil Gold 2E shortly after transplanting, 30 and 60 days later.

✓ **Spinach:** Observe fields for the presence of **white rust**. Once observed apply Kocide LF as a foliar spray if plants are 2-3 weeks from harvest, or apply Aliette if the field is closer to harvest to avoid **copper phytotoxicity**.

✓ **Squash (Summer):** Maintain applications of Ridomil Gold/Bravo or Ridomil Gold/Copper as a foliar spray every 14 days for control of **Phytophthora blight**. For fields that have fruit, apply Bravo for control of **scab**, which is a disease of the fruit that occurs when the night temperature is below 60°F.

✓ **Tomato:** Maintain applications of a copper fungicide + mancozeb, ManKocide, or Bravo C/M as a foliar spray shortly after transplanting, and 1-2 times at 7-day intervals for control of **bacterial diseases**. Several fields of early varieties are small, and not growing

Pest Notes

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

✓ **General:** Lepinox WDG has received a federal registration as a biological insecticide for control of lepidopterous insect pests on many crops, including asparagus, beans, beets, celery, okra, parsley, peas, spinach, tomatoes, cucurbits, corn, leeks, and lentils. Lepinox is a B.t. (*Bacillus thuringiensis* subspecies *kurstaki* strain EG7826) that effectively controls **armyworms, earworms, European corn borer, fall armyworms**, and others. Apply 1-2 pounds of Lepinox WDG when early instars (small larvae) appear, and a second application 7-10 days later.

The cool, wet weather will likely mean slower plant growth for most crops. Keep in mind that plants will be more susceptible to soil insect attack such as **maggots** and **cutworms** for a longer period of time because of these cool temperatures. Monitor the crop frequently to determine if insect damage is increasing.

✓ **Potato:** AgriMek 0.015EC is labeled for use on potatoes at a rate of 8-16 fl oz per acre for the control of Colorado potato beetle. AgriMek is a completely different chemistry than other labeled products, and is one of several tools that is helpful in both an IPM program and an insecticide resistance management program. It is effective against insecticide resistant **beetles**, can be applied only twice, and cannot be applied within 14 days of harvest. Consult label for all rates, restrictions, and recommended application procedures. □

very fast. This is the result of the excessive windy and cool weather this spring. Once warmer temperatures occur, greater growth will take place.

✓ **Potato (White):** Once tubers reach nickel size, apply Ridomil Gold MZ as a foliar spray, and repeat in 14 days for prevention of **pink rot**. □

Late Blight on White Potato

For the second year Rutgers Cooperative Extension is forecasting the risk of Late Blight infection in white potato crop fields of South Jersey. Weather information from two field monitor stations is modeled. Resulting 'Disease Severity Values' accumulate until fungicide treatments are recommended to protect potato crops. Growers and their ag industry supporters can receive fax updates twice weekly from the Rutgers Agricultural Research and Extension Center by calling 609-451-3100. □

Vegetable IPM Update

Donald J. Probst, Ph.D., Pest Management

◆ Cole Crops

Locally, heavy populations of **Imported cabbageworm** have been found in cole crops throughout northern and central New Jersey.

Diamondback moth larvae are beginning to show up at low levels in northern counties.

◆ Potato

Activity of **European corn borer (ECB) moths** in the potato area traps has been low to moderate. Monitor fields for larval infestation by looking for flagging or wilting terminals.

◆ Sweet Corn

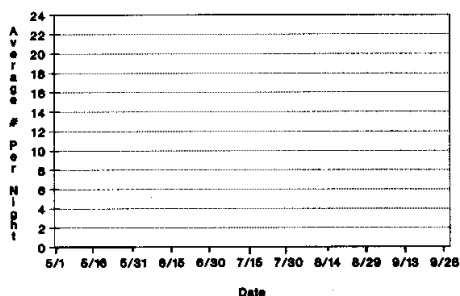
A second **corn earworm (CEW) moth** was caught in Gloucester County. Corn should be treated when 5% of the plants have new silks. Chapel Heights 1

European corn borer (ECB) adult population is slowly rising. Catches are highly variable due to fluctuations in evening temperatures. In the southern part of the state, begin to monitor whorl and pretassel stage corn and treat when 12% of the plants show signs of **ECB** feeding.

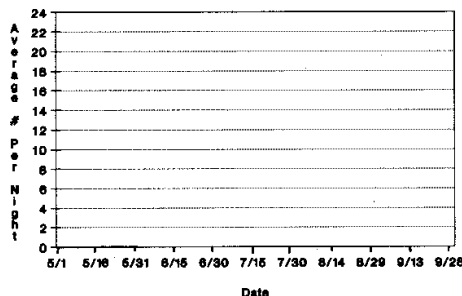
The highest average nightly **ECB** blacklight trap catches are as follows:

Cohansey	9	Ringoes	6	Ellisdale	4
Medford	8	Shiloh	6	Hopewell	4
Shirley	7	Elmer	5	Milford	4
Georgetown	6	Rosenhayn	5	Woodstown	4

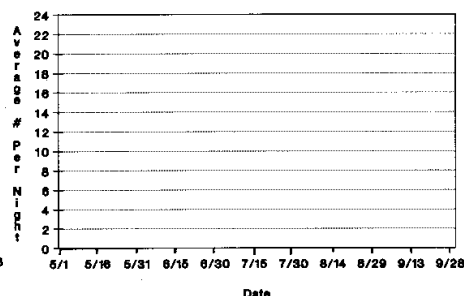
Northern NJ- CORN EARWORM (CEW)
Blacklight Trap Catches



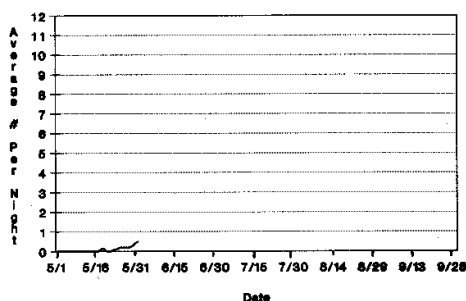
Central NJ- CORN EARWORM (CEW)
Blacklight Trap Catches



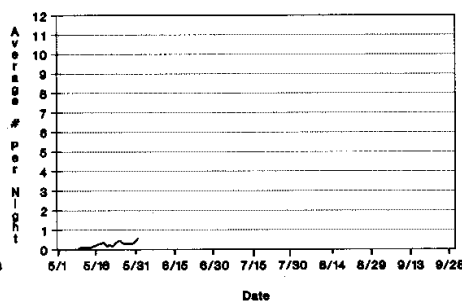
Southern NJ- CORN EARWORM (CEW)
Blacklight Trap Catches



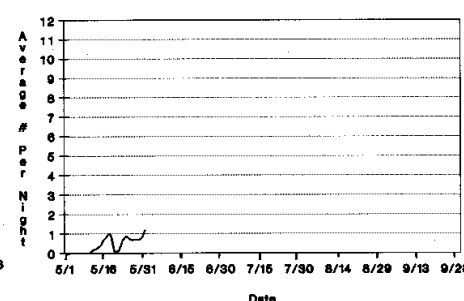
Northern NJ- EUROPEAN CORN BORER (ECB)
Blacklight Trap Catches



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



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



Weekly Weather Summary

Keith Arnesen, Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 81 degrees at Downstown and Woodstown on the 2nd and 35 degrees at Newton on the 28th. Weekly rainfall averaged 0.23 inches North, 0.53 inches Central, and 0.60 inches South. The heaviest 24 hour total was 0.79 inches at Cape May Courthouse on the 26th to 27th. Estimated soil moisture, in percent of field capacity, this past week averaged 83 percent North, 89 percent Central and 82 percent South. Four inch soil temperatures averaged 57 degrees North, 61 degrees Central and 60 degrees South.

Weather Summary for the Week Ending 8 a.m. Monday 6/ 2/97										
WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.12	9.50	-2.14	79	41	61.	-3	259	-103	79
CANOE BROOK	.38	10.64	-2.19	80	40	62.	-2	381	46	92
CHARLOTTEBURG	.15	12.81	.14	78	38	60.	-2	229	-5	71
FLEMINGTON	.18	11.05	-1.10	80	38	61.	-4	271	-82	75
LONG VALLEY	.22	11.57	-1.52	76	38	60.	-2	230	-43	82
NEWTON	.32	9.83	-1.35	77	35	57.	-6	151	-127	75
FREEHOLD	MISSING									
LONG BRANCH	.59	12.29	-.18	70	42	59.	-6	362	-8	94
NEW BRUNSWICK	.42	13.45	1.52	77	41	62.	-4	371	-80	94
PEMBERTON	.35	12.62	1.09	75	40	62.	-4	503	57	80
TOMS RIVER	MISSING									
TRENTON	.75	12.88	1.92	80	40	62.	-5	373	-122	98
CAPE MAY COURT HOUSE	1.15	11.59	.97	69	39	58.	-8	424	-17	90
DOWNSTOWN	.15	11.11	.23	81	37	61.	-6	412	-97	62
GLASSBORO	.73	14.54	2.93	77	43	62.	-5	460	-30	98
HAMMONTON	.17	12.16	.86	80	36	60.	-7	403	-79	74
POMONA	.86	12.76	2.27	74	37	60.	-6	419	3	100
SEABROOK	.25	12.70	2.66	80	42	63.	-4	459	-55	64
ATLANTIC CITY MARINA	.87	9.15	-.78	67	48	59.	-6	404	10	94
WOODSTOWN	1.24	12.27	.83	81	40	62.	NA	477	NA	NA
WES KLINE — GDD BASE 40 PINEY HOLLOW This Week 147 (Ending 06/02/97)										

Cream Ridge Strawberry Plasticulture and Breeding Field Day

Thursday, June 5, 1997, 1:00 p.m.

Rutgers Fruit Research and Extension Center
283 Route 539, Cream Ridge, NJ

- ❖ Plasticulture Research Plot Tours
- ❖ Eastern Variety Trials
- ❖ Organic Nutrition
- ❖ Runner Removal
- ❖ Vegetable Double Cropping
- ❖ NJAES Strawberry Breeding and Variety Showcase
- ❖ Plasticulture and Matted-row
- ❖ Field Equipment Demonstrations
- ❖ Weed, Disease and Insect Diagnostics



For further information, contact Dr. Joseph Fiola, Specialist in Small Fruit and Viticulture, (609) 758-7311.

North Jersey Strawberry Research Trials Open House

June 12, 1997

6:00 pm - 8:00 pm

Snyder Farm, Pittstown, NJ

- ❖ Strawberry plasticulture trials examining the influence of planting date, row cover removal date, and double cropping on yield, earliness, fruit quality, and returns per acre.
- ❖ Matted row variety trial with recent commercial releases from the USDA, Cornell University, and Italian breeding programs.

Please contact Peter Nitzsche to get further details, or schedule an appointment to view the trials at a different date and time, (201) 285-8300 or 285-8307. For directions to Snyder Research and Extension Farm, call (908) 730-9419.

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PLANT & PEST ADVISORY

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Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The user is responsible for the proper use of pesticides, residues on crops, storage and disposal, as well as damages caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact Rutgers Cooperative Extension of your County.

Use of Trade Names: Trade names are used in this publication with the understanding that no discrimination is intended and no endorsement is implied. In some instances the compound may be sold under different trade names, which may vary as to label clearances.