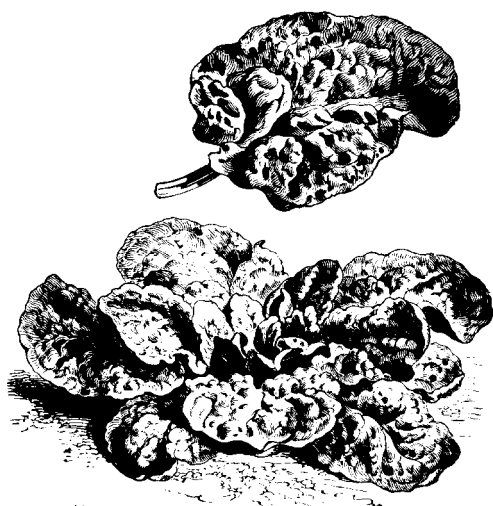


# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

AUGUST 2, 2000



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## Know Your Production Price

### Competition from the Western Region

*Jack Rabin, Assistant Director, New Jersey Agricultural Experiment Station*

**O**ne key factor for success as a grower in the fresh produce business is knowing and serving the needs of your customers. What quantities, level of quality, and cooling/shipping services does it take to satisfy your customers, and their consumers?

You also need to be keenly aware of your competition, particularly the yields, quality, cost efficiency, and break-even price per package of competing growers in other regions compared to your operation. As the US Government and USDA decrease their support of growers' production risks (and possibly replacing it with subsidized crop insurance), understanding costs helps you plan for managing risks of loss from adverse weather or periods of low prices.

Santa Barbara Bank & Trust, a bank providing agribusiness loans in the Central Coast of California, released a survey of local costs and yields for some crops that are also important to New Jersey growers. This information was reported in the March 18, 2000 Western Farm Press by Staff Editor Dan Bryant. A few crops are highlighted here. Compare them with your own production. The information was gleaned from interviews with growers, farm managers, and their accountants.

| Crop                            | Unit Size             | Yield per Acre | Pre-harvest Costs | Over-head Costs | Total Growing Costs | Harvest Costs per Unit | Break-even Price |
|---------------------------------|-----------------------|----------------|-------------------|-----------------|---------------------|------------------------|------------------|
| <b>Cabbage</b>                  | 50 lb. box            | 700 boxes      | \$1,610           | \$150           | \$1,760             | \$2.00                 | \$4.51 box       |
| <b>Head Lettuce</b>             | 50 lb. 24 head carton | 690 cartons    | \$1,670.          | \$420           | \$2,090             | \$2.90                 | \$5.93 carton    |
| <b>Leaf and Romaine Lettuce</b> | 24 head carton        | 1,160 cartons  | \$1,810           | \$250           | \$2,060             | \$1.70                 | \$3.48 carton    |
| <b>Pepper</b>                   | 1 lb.                 | 26,350 lbs.    | \$1,930           | \$510           | \$2,440             | \$0.10                 | \$0.19 lb.       |
| <b>Spinach</b>                  | 20 lb. carton         | 520 cartons    | \$860             | \$420           | \$1,280             | \$2.00                 | \$4.46 carton    |

SEE COSTS ON PAGE 3

# Vegetable Crops Diseases

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

✓ **Beans (lima):** Favorable conditions for **downy mildew**, are when fields receive 1.2 inches or more of rain within 7 days and the average daily temperature during this period is 78°F or less. If a period of 90°F occurs during this period, the cycle is broken, and an additional 7-day period of favorable environmental conditions is necessary to start infection. Apply Champ or Kocide every 7-14 days depending on environmental conditions for protection.

✓ **Beets:** Maintain applications of a copper fungicide every 7-10 days for control of **leaf spots**.

✓ **Carrots:** Maintain applications of Bravo every 10 days for the control of **leaf blights**.

✓ **Cole crops: Downy mildew** is present in some fields at this time. Infected leaves contain numerous irregularly shaped lesions that contain short, white sporulation of the fungus on the underside. The sporulation is best observed early in the morning. Apply maneb or Aliette for control. For new seedings, apply Ridomil Gold 4E as a soil surface application for **damping-off** control, and early season control of **downy mildew**. **Alternaria leaf spot** is present in some fields. Infected leaves contain brown, circular lesions. Apply Bravo or maneb as a foliar spray for control.

✓ **Corn (sweet):** For fields in the whorl stage or younger, apply a fungicide for control of **rust**. Older fields with **rust** present will not benefit from fungicide application.

✓ **Cucumber:** Maintain applications of Bravo + a copper fungicide alternated with Quadris + a copper fungicide for control of **foliar & fruit diseases**.

✓ **Eggplant: Verticillium wilt** is prevalent in fields this year. Infected plants have one leaf, one branch or one portion of the plant with large light green areas present. The plant becomes stunted and eventually completely wilts. No control is available at this time. Preplant soil fumigation and selection of varieties that maintain yield in infested fields are control measures to be used in future years.

✓ **Greens (Mustard, Turnip):** Apply Ridomil Gold 4E as a soil surface application after planting for control of **damping-off** & early season control of **downy mildew**.

✓ **Leeks:** Shortly after transplanting, apply Bravo as a foliar spray for control of **purple blotch**, and repeat every 10 days.

✓ **Lettuce:** Beginning one week after thinning apply Ronilan or Rovral as a directed spray to the base of the plant and surrounding soil for control of **drop (Sclerotinia)**. In area where **bottom rot (Rhizoctonia)** is a problem, use Rovral.

✓ **Muskmelon: Anthracnose** is present on various melon types at this time. Infected leaves have brown circular shaped lesions in which the centers fall out. Fruit contain large, brown, sunken lesions. Applications of Bravo + Benlate or Topsin M every 7 will assist in control.

✓ **Onions (bunching):** Preplant soil fumigation is important for control of **white rot** on the overwintered crop. Be sure the field is free of plant debris and soil moisture is suitable for seed germination prior to fumigating to ensure an effective performance of the soil fumigant. Allow 2-3 weeks aeration from the time of treatment and seeding to avoid phytotoxicity in the crop.

✓ **Parsley: Bacterial spot** is prevalent in some fields at this time. Apply a copper fungicide every 7 days, and avoid working in fields while the foliage is wet to reduce spread. Completely bury crop debris in the soil following harvest, and space fields as far apart as possible.

✓ **Peppers: Bacterial spot** is present in some fields at this time. Maintain applications of a copper fungicide + maneb every 7 days, and avoid working in the field while the foliage is wet to reduce spread.

✓ **Potato (white): Early blight** is present on late maturing varieties. Infected leaves contain numerous large, circular lesions that contain concentric rings within the lesion and a yellow area around the lesion. Applications of Quadris as a foliar spray alternated with Bravo or mancozeb every 7 days will assist in control.

✓ **Pumpkins & winter squash: Powdery mildew** is present in fields throughout the state at this time. Additionally, the cucurbit downy mildew forecast system has issued a moderate threat for the occurrence of the disease to appear in the Mid-Atlantic region. Therefore, all fields should receive the following fungicide program for control of **downy & powdery mildew**: Ridomil Gold Bravo or Flouronil + Nova alternated with Quadris every 7 –10 days. For fields with large fruit, add a copper fungicide at each spray date for protection against **Phytophthora fruit rot**.

✓ **Squash (summer): Phytophthora fruit rot** is present in fields of zucchini at this time. Initially, small circular, dark green spots which sometimes exude an ooze appear on the fruit. After 2-3 days the entire fruit is covered with a dense white sporulation of the fungus and collapses. Maintain applications of Ridomil Gold Bravo or Flouronil + a copper fungicide for control. All fields being seeded at this time for fall production should be produced on reflective mulch for prevention of **mosaic viruses**.

✓ **Spinach:** For fall plantings use the varieties 'Vancouver' or 'Fidalgo', which possess resistance to

SEE DISEASES ON PAGE 3

# Pest Notes

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

✓ **Tomatoes: Tobacco and tomato hornworms** have been stripping the leaves from tomato plants throughout the southern areas of New Jersey. These pests are voracious leaf feeders, but are also easily managed using the “soft” pesticides such as the Bt’s (DiPel, XenTari, Javelin, Mattech, Cutlass, etc.) or materials such as SpinTor. The pyrethroids work well, including Asana, Baythroid, Danitol, or Warrior. The key to proper management of hornworms is to monitor the crop to detect these pests while they are still small, and then using any of the recommended pest control materials before the larvae grow large. Thorough coverage of the foliage is important, using high pressure (>40 psi) and high gallonage (>50 gpa) for best results.

Also, plantings that received early applications of Admire will likely have **potato beetle** larvae on the plants. Monitor the fields to find the “hot” spots, and treat those areas if adults or larvae exceed 20/plant. Effective materials include AgriMek, Raven, Novador, Ecozin, SpinTor, Thiodan, and Vydate. Avoid Provado to reduce the possibility of insecticide resistance buildup, and avoid Cryolite at this time to reduce the amount of white residue on the fruit.

For those “hard to control” insect pests such as **aphids, stink bugs, thrips, and earworms**, Monitor 4 is labeled in New Jersey as a Special Local Needs Label, or 24-C. Use 1.5 to 2 pints per acre, but make sure a copy of the label is in the hands of the applicator at time of application.

✓ **Eggplant: Colorado potato beetles** are increasing in numbers on eggplant in several areas. These pests are easier to manage as small instars (first and second), but more difficult to manage as larger instars (third and fourth, or adults). Because these pests can cause direct damage to the fruit at this time, treat if larvae are present and the numbers are increasing. Use Raven or Novodor, SpinTor, Thiodan, or Vydate L. Consult the *2000 Commercial Vegetable Recommendations for New Jersey* for more information concerning pest management materials, rates, restrictions, suggestions, etc.

✓ **Peppers: Aphid** populations are starting to rapidly increase on peppers in plots on the Rutgers Agricultural Research and Extension Center, Bridgeton, NJ. Although the aphids at that site are primarily the **green peach aphid**, it is a must that you identify any aphids found on your farm because the materials that control **melon aphid** are different from those that control the green peach aphid. More information concerning the different materials for these two aphids are listed on page 120 of the *2000*

*Commercial Vegetable Production Recommendations for New Jersey*. Remember that management of aphids is much easier to accomplish if the population is relatively small, with a few aphids found in low numbers throughout the field. After the populations “explode” into numerous clusters of aphids, the population becomes damaging and is much more difficult to control.

Also on peppers, feeding caused by **beet army-worm** is beginning to appear. Damage appears as large, gaping holes in the foliage, usually to the leaves in the upper tiers of the plant. Control is obtained by the application of a pyrethroid such as Asana, Baythroid, Ambush, Pounce, or a material such as Lannate or SpinTor. A new insect growth regulator, Confirm, is now labeled and is also effective.

**European corn borer** counts are still somewhat low, but with the current hot, humid weather and the appearance of moths, it can be expected that egg masses will begin to be deposited on pepper plants. If moth activity is detected (moths caught in either blacklight traps or pheromone traps) in areas near your farm, initiate a spray program if you haven’t yet started. See page 120-121 of the *2000 Commercial Vegetable Production Recommendations for New Jersey* for more information and recommended materials for European corn borer management in peppers. □

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## COSTS FROM PAGE 1

**Pre-harvest costs** include such items and practices as non-harvest labor, irrigation, chemicals, seeds, planting costs, cultivation, fuel, land cost, and property taxes.

**Overhead costs** include owner/operator salaries for management, office expenses, medical insurance, and other costs not associated with growing crops.

**Harvest costs** include labor, packaging, grading, or hauling from field to cooler.

Pre-cooling, palletizing, storage, shipping, and **sales costs** were not included in the data. □

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## DISEASES FROM PAGE 2

**white rust.** Apply mfenoxam (Ridomil Gold, Ultra Flourish) as a soil surface application shortly after seeding for control of **damping-off** and early season control of **white rust**.

✓ **Tomatoes: Bacterial canker** is present in a number of fields at this time. Avoid working in fields while the foliage is wet to reduce spread. Maintain applications of Bravo alternated with Quadris for control of **foliar & fruit diseases**. □

# Vegetable IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

## Corn Earworm Activity Increasing

The weather pattern of the last ten days has resulted in significantly higher **corn earworm (CEW)** adult activity in our area (see **CEW** map). The effect for particular host crops is noted in each crop section below, and the highest blacklight trap counts are listed in the sweet corn section. Also note that there is another resource for regional **CEW** information. The *Sweet Corn Pest Monitor* is a web site from Penn State ([www.ento.psu.edu/vegetable/sweetcorn/default.html](http://www.ento.psu.edu/vegetable/sweetcorn/default.html)) that provides blacklight and pheromone trap data from surrounding states on a regional map. This site is helpful in providing a warning for increases in **CEW** activity in the Mid-Atlantic region.

## Sweet Corn

**CEW** activity has increased significantly over the last week as a result of the recent southerly weather pattern. Particularly high adult numbers are being recorded in parts of Cumberland and Gloucester counties. **CEW** larvae are being found in higher numbers in pretassel and whorl stage sweet corn, giving further indication that silk stage corn is at high risk of infestation. Under these conditions, it is imperative that silk schedules begin promptly at full tassel to first silk. Silk schedules should be maintained up to the required harvest interval.

The highest average nightly **CEW** blacklight trap catches are:

|           |    |               |   |                  |   |
|-----------|----|---------------|---|------------------|---|
| Shirley   | 14 | Crosswicks    | 8 | Mullica Hill     | 7 |
| Centerton | 10 | Indian Mills  | 8 | Sewell           | 7 |
| Cohansey  | 10 | Elm           | 7 | Pemberton        | 6 |
| Allentown | 8  | Fishing Creek | 7 | Upper Pittsgrove | 6 |

**European corn borer (ECB)** adult catches continue to increase in Cumberland and Burlington County light traps. There have also been signs of increasing activity this past week in Mercer and Hunterdon counties. The second flight has not appeared in large numbers in many other parts of the state (see **ECB** map). **ECB** larvae are now being found in whorl stage sweet corn plantings. These plantings should be treated when greater than 12% of plants are infested with **ECB** alone or in combination with fall armyworm (**FAW**). **ECB** will also infest sweet corn ears directly after eggs are laid on or near the husk. These individuals will be controlled along with **CEW** provided that adequate silk schedules are maintained.

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

|           |    |                  |   |              |   |
|-----------|----|------------------|---|--------------|---|
| Allentown | 11 | Sewell           | 6 | Tabernacle   | 5 |
| Shirley   | 9  | Upper Pittsgrove | 6 | Centerton    | 4 |
| Ellisdale | 7  | Crosswicks       | 5 | Indian Mills | 4 |
| Cohansey  | 6  | Manville         | 5 | Seeley Lake  | 4 |

**FAW** infestations in whorl and seedling stage sweet corn are now found throughout the state. Most infestations in the northern counties are below the 12% threshold. In southern and central counties, infestations in the 20% range are common, with plantings as high as 30% as reported by Garden State Pest Management in Ocean County, and by Sally Walker in Burlington County. When scouting, look for plants with large, ragged feeding on leaves and visible excrement in the center of the whorl. Feeding is usually found on groups of plants in the field as the infestation starts. Later, as adult populations increase, feeding becomes uniform throughout the field. Consider treating if more than 12% of plants are infested with **FAW** alone or in combination with **ECB**.

**Corn rootworm (CRW)** beetles are now active in sweet corn plantings around the state. **CRW** adults may be yellow with black spots or dark green to black, depending on species. These beetles feed on leaves, but cause little economic damage. Their feeding can be mistaken for that of young **FAW** larvae. On **CRW** damaged plants, often the beetles can be found in the whorl. Excrement from **CRW** is much finer than that of **FAW** larvae. It may be helpful to peel apart the whorl of a plant to find the small **FAW** larva to verify which pest is causing damage.

Recent weather conditions have been conducive to the development of **rust** in sweet corn. Many fields in the young whorl stage are now infected with this disease. Under these conditions, fungicide applications may be warranted if the variety in question is susceptible to **rust**. Check the *2000 Commercial Vegetable Production Recommendations* for materials that will control this disease.

## General Sweet Corn Spray Schedule

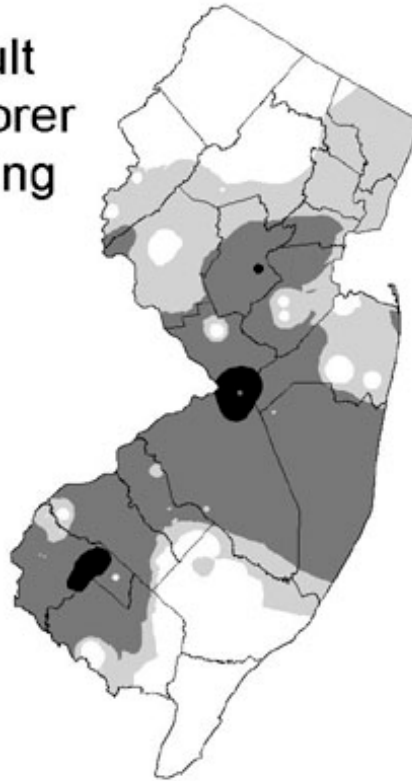
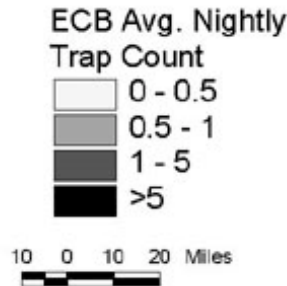
|               |         |            |
|---------------|---------|------------|
| Silking corn: | North   | 3 - 4 days |
|               | Central | 3 days     |
|               | South   | 3 days     |

## Peppers

**European corn borer** adults are active at threshold levels in southern and central counties. In areas where blacklight or pheromone trap levels of 1-2 **ECB** per night or greater exist (see **ECB** map) maintain a weekly spray schedule for **ECB** control on fields with half-inch or greater size fruit. **CEW** adult blacklight trap counts have also increased significantly this past week. In areas with counts (greater than 0.8 on the **CEW** map) consider using materials in the fruit cover sprays that will also control **CEW**. Remember that

SEE IPM AND PEST DISTRIBUTION MAPS ON PAGE 5

## Distribution of Adult European Corn Borer for the Week Ending August 2, 2000



acephate (Orthene, Address) is not a recommended **CEW** material. Consult the *2000 Commercial Vegetable Recommendations* for materials to control both **CEW** and **ECB**.

### Beans

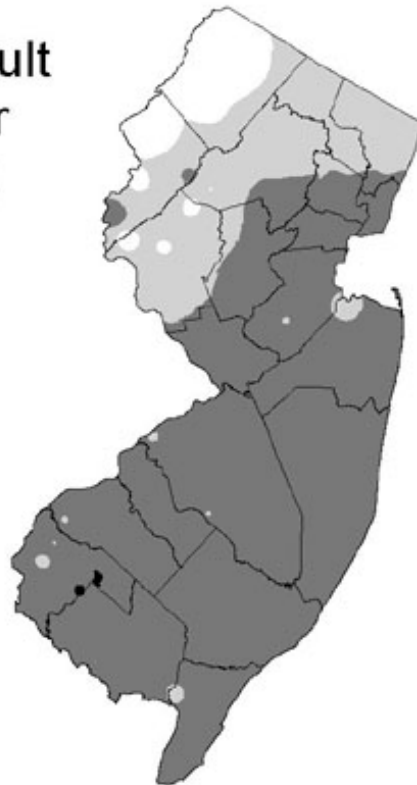
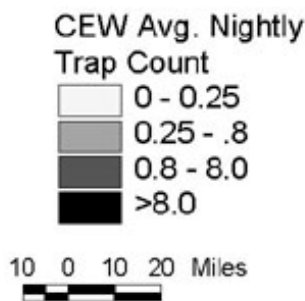
**European corn borer (ECB)** adults are active at moderate to high levels in several southern and central counties now (see **ECB** map). A general guideline for fresh market snap beans is to treat fields on a weekly schedule from pin stage when **ECB** moth counts exceed 5 per night in local blacklight traps. For processing beans, thresholds and spray intervals for **ECB** are listed in the *2000 Commercial Vegetable Recommendations*. At this time, a weekly spray schedule following the pin stage application is recommended in areas where blacklight trap counts are 2 to 5 per night. Following the pin stage application, for every increase of 5 moths, the spray interval should be decreased by 1 day. Note also that **CEW** populations are increasing. A 5-7 day schedule to control **CEW** is recommended if populations exceed 20 per night in the blacklight traps.

Begin scouting lima bean fields for the presence of **CEW** and **FAW** larvae. To sample for worms use a 3-foot shake cloth placed on the ground between 2 rows. In at least 5 locations in the fields, shake both sides of the row (totaling 6 feet) onto the shake cloth and record the number of worms found. Consider treatment if 1 or more **CEW** or **FAW** larvae are found per 6 foot of row.

### Tomatoes

**Tomato fruitworm (CEW)** adult blacklight trap counts have increased significantly in many areas this past week (see **CEW** map). When blacklight trap levels exceed approximately 10 per night, **CEW** may be a threat to fields with fruit. When scouting fields, make sure to check fruit for evidence of larval activity, especially in the fruit clusters, and consider treatments if larvae or fresh feeding are found. **Stinkbug** adult levels have increased slightly in blacklight traps around the state as well. Fruit cover sprays should be targeting **CEW** and **stinkbugs**. □

## Distribution of Adult Corn Earworm for the Week Ending August 2, 2000

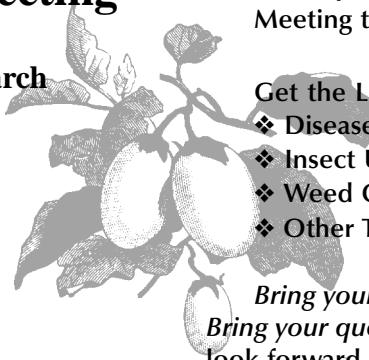


Data collected and processed by: Kris Holmstrom, Sally Walker, Marilyn Hughes  
Rutgers Cooperative Extension & Center for Remote Sensing

# Vegetable Twilight Meeting

August 21, 2000

Rutgers Agricultural Research  
and Extension Center  
121 Northville Rd.  
Bridgeton, NJ



Plots open for viewing at 4:00 p.m.  
Meeting to begin at 5:30 p.m.

Get the Latest Information

- ❖ Disease Updates
- ❖ Insect Updates
- ❖ Weed Control Updates
- ❖ Other Timely Issues

See Field Trials

- ❖ Eggplant Variety Trials
- ❖ Pepper Variety Trials
- ❖ Processing Tomato Trials
- ❖ Central Asian Melon, Tomato and Pepper Variety Trials
- ❖ Sweet Corn Variety Trials

*Bring your plant insect samples to be identified.  
Bring your questions for agents and specialists. We  
look forward to seeing you at the meeting!*

For additional information contact Stephen A. Garrison, Specialist in Vegetable Crops at Rutgers Agricultural Research and Extension Center at (856) 455-3100.

## Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged much below normal. Extremes were 89 at Pemberton on the 31st and 41 degrees at Belvidere on the 27th. Weekly rainfall averaged 2.26 inches north, 3.07 inches central, and 2.57 inches south. The heaviest 24 hour total was 4.77 inches at Long Branch on the 26th to the 27th. Estimated soil moisture, in percent of field capacity, this past week averaged 87 percent north, 85 percent central and 79 percent south. Four inch soil temperatures averaged 68 degrees north, 71 degrees central and 72 degrees south.

**Weather Summary for the Week Ending 8 am Monday 7/31/00**

| WEATHER STATIONS     | RAINFALL |       |       | TEMPERATURE |    |     |     | GDD BASE50 |     | MON %FC |
|----------------------|----------|-------|-------|-------------|----|-----|-----|------------|-----|---------|
|                      | WEEK     | TOTAL | DEP   | MX          | MN | AVG | DEP | TOT        | DEP |         |
| BELVIDERE BRIDGE     | 2.11     | 26.41 | 6.84  | 83          | 41 | 68. | -6  | 1543       | -11 | 98      |
| CANOE BROOK          | 3.00     | 19.34 | -1.31 | 80          | 62 | 69. | -6  | 1695       | 148 | 98      |
| CHARLOTTEBURG        | 2.58     | 22.02 | 1.21  | 82          | 55 | 66. | -7  | 1247       | 57  | 100     |
| FLEMINGTON           | 1.37     | 19.18 | -.83  | 83          | 59 | 71. | -3  | 1742       | 149 | 83      |
| LONG VALLEY          | 2.23     | 21.19 | -.23  | 83          | 58 | 69. | -4  | 1385       | 17  | 92      |
| FREEHOLD             | 2.40     | 15.37 | -4.02 | 82          | 61 | 71. | -4  | 1871       | 162 | 89      |
| LONG BRANCH          | 5.53     | 23.11 | 3.85  | 79          | 64 | 70. | -5  | 1632       | 1   | 82      |
| NEW BRUNSWICK        | 2.69     | 18.88 | -.48  | 82          | 64 | 71. | -4  | 1801       | 4   | 91      |
| PEMBERTON            | 2.06     | 17.40 | -2.02 | 89          | 62 | 72. | -4  | 2274       | 525 | 73      |
| TOMS RIVER           | 3.78     | 21.78 | 1.88  | 83          | 60 | 71. | -4  | 1777       | 140 | 69      |
| TRENTON              | 1.95     | 17.53 | -1.02 | 84          | 63 | 71. | -6  | 1874       | 4   | 74      |
| CAPE MAY COURT HOUSE | 2.72     | 19.82 | 2.69  | 83          | 63 | 72. | -4  | 1846       | 102 | 71      |
| DOWNSTOWN            | 2.94     | 21.58 | 3.48  | 86          | 62 | 72. | -5  | 1946       | 64  | 100     |
| GLASSBORO            | 2.83     | 21.66 | 2.58  | 87          | 66 | 73. | -3  | 2075       | 218 | 93      |
| HAMMONTON            | 2.12     | 18.91 | -.24  | 86          | 61 | 72. | -5  | 1880       | 24  | 74      |
| POMONA               | 3.42     | 21.90 | 4.66  | 83          | 63 | 71. | -4  | 1814       | 84  | 72      |
| SEABROOK             | 1.19     | 20.75 | 3.23  | 85          | 65 | 73. | -4  | 2048       | 159 | 70      |
| ATLANTIC CITY MARINA | 2.75     | 19.37 | 2.86  | 81          | 69 | 73. | -2  | 1853       | 211 | 69      |
| SOUTH HARRISON       | 2.13     | 24.26 | 4.94  | 86          | 64 | 77  | NA  | 2036       | NA  | NA      |

Maximum thermometer at Pemberton has been replaced. Temperatures have been averaging much too high and therefore Growing degree days units are too high.

WES KLINE — GDD BASE 40 PINEY HOLLOW Last Week 226 (Ending 7/24/00) This Week 229 (Ending 7/31/00)

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