RUTGERS COOPERATIVE EXTENSION AT THE NEW JERSEY AGRICULTURAL EXPERIMENT STATION

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION $1.50 JUNE 14, 2000

INSIDE

Prepare for Potential Heat Illnesses

Michelle Infante-Casella, Gloucester County Agricultural Agent

Heat stress is an issue for everyone who works outside during summer months. It is especially so for agricultural workers. You can try to prevent heat stress by dressing properly, keeping in good health, and drinking plenty of water. Wearing light colored clothing made of breathable materials like cotton and a brimmed hat will help shield your body from the hot sun. Working to keep physically fit, keeping your blood pressure under control, and maintaining your proper weight are all ways to help your body resist heat stress. You may want to provide yearly physicals for your employees to make sure they are physically fit and not at risk for heat related illnesses. Health officials recommend drinking at least 8 glasses of water per day. However, under high heat conditions it is important to replenish body fluids regularly by drinking more than eight glasses of water per day. Drink a lot of water before going to work, during breaks, and after work so you are less prone to heat stress. Additionally, increasing salt intake can also help to prevent heat stress. Salt tablets are available at many drug stores specifically for this reason. Ask a doctor or pharmacist for assistance. These latter suggestions are just some ways to reduce the risk of heat stress.

Although we try to avoid heat related illnesses, they can still occur. Preparing for a health related emergency is important to protect yourself and your workers. If a heat related illness occurs, follow these steps to assist the person:

- Move the person into a cool area or into the shade.
- Have someone call for medical assistance immediately (911).
- Remove the person's outer clothing (outer shirt, hat, etc.).
- Cool the person off with cool water by sponging or splashing the trunk, legs, arms, and hands. Placing cool packs under the armpits and groin area also helps since this is where major arteries are located.
- If the person is able, have them drink as much water as possible.
- Try to keep the person still until medical help arrives.

If the person was applying pesticides at the time the illness occurred, be sure to alert the emergency medical service technicians about the type of work being done and provide them with the

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EPA Announces Changes to Chlorpyrifos Labeling

George Hamilton, Ph.D., Pest Management

On June 8, 2000, the United States Environmental Protection Agency (EPA) announced that it would be reclassifying chlorpyrifos (Dursban and Lorsban) as a restricted use product, phasing out certain uses, and limit the use of chlorpyrifos in areas where children may come in contact with product residues. While the bulk of these changes affect uses not related to vegetables, you should be aware of the following items:

- Beginning in December of 2000 you will be required to have a state applicators license in order to purchase and use chlorpyrifos products.
- The restricted entry intervals for chlorpyrifos may change as of 12/1/00 for newly purchased materials. You will need to check newly purchased materials for any changes that might have occurred.
- Beginning in August and September of this year, all new products will carry labels prohibiting the use of chlorpyrifos on tomatoes.
- As of 12/31/00, the use of chlorpyrifos on tomatoes will no longer be allowed. On that date, the tolerances for tomatoes will also be revoked.

If you have any questions about these changes further information can be obtained from the USEPA website at: http://www.epa.gov/pesticides/announcement6800.htm. ❑

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pesticide label or MSDS information. Many heat stress symptoms are very similar to pesticide poisonings. Additionally, when you assist the person, wear gloves if you know that their outer clothing may be contaminated with pesticides.

Preparing for on-farm emergencies is very important for proper treatment. Take a few minutes to talk with your family and your workers about how to react to emergencies. You may think that this will not happen, but it can. A few minutes of preparation can save someone's life. ❑

Pest Notes

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

✔ **Cabbage (and Related Crops): Flea beetles** are feeding on small cabbage plants and leaving tiny holes in the leaves. These insects are primarily a pest only when the plant is small and cause damage by leaving small holes that increase with size as the plant grows. If holes are numerous, the leaves can become shredded or may desiccate in the dry weather. Monitor for the pest; and if damage is increasing or **beetles** are readily found, then treat with either Ammo, Asana XL, Capture, carbaryl (Sevin), Thiodan or Warrior. A spreader-sticker improves insect control on cabbage. Obtain thorough coverage of leaf surfaces for best results.

✔ **Corn: Corn earworm** larvae and damage are beginning to appear in whorl stage corn. The larvae hide in the whorls, feed on the emerging tissue, and leave large gaping holes in the leaves. If damage is appearing to the whorls, it is important to cut the whorl off at the growing point, unroll the leaves, and find and identify the larvae, because three different larvae will feed in the whorls at this time: **corn earworm, European corn borer**, and **fall armyworm** (if present); and different insecticides are recommended for the different pests. For both **corn earworm** and **European corn borer**, use either Asana XL, Baythroid EC, Ambush, Lannate, Pounce, or Warrior (note Capture *cannot* be used in coastal counties, which includes nearly all of New Jersey). If the pest is **European corn borer** only, DiPel, Lorsban, Penncap-M, and SpinTor are also recommended. Consult pages 146-148 of the *2000 NJ Commercial Vegetable Production Recommendations* for additional information concerning timing of applications, rates, restrictions, etc.

✔ **Cucurbits:** Several fields have had **cutworm** damage, and the plants are physically being "cut" at the soil level. If cut plants are found, dig down about 2 inches in the soil around the freshly cut plant to find and determine if it was **cutworm**; then apply either Asana, Capture, Lannate, Ambush or Pounce as a directed spray to the base of the plant. Early evening applications are best, as **cutworm** activity commences during the evening hours.

✔ **Potato:** Increasing populations of **potato leafhopper** are being reported by scouts throughout New Jersey. Adults and nymphs are found; and if more that 1 adult is caught per sweep (of sweep net) or more than 1 nymph is found per 10 leaves, treatment should be applied. Effective control materials for **potato leafhoppers** include dimethoate, Guthion, Imidan, Lannate, Provado, Thiodan, and Vydate. Also, the pyrethroids Ambush, Asana XL, Baythoid, and Pounce are labeled and will suppress or control **leafhoppers**. **Leafhoppers** are difficult to control once the population becomes large, and damage at this time will likely result in yield stress, so it is important to monitor this pest and take corrective action if it is needed. ❑

Vegetable Crops Diseases

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

✔ **Beans, (Snap):** Phytotoxicity from Ridomil is evident in some plantings. Symptoms include an interveinal chlorosis on the older leaves, and in some cases the entire leaf is scorched. Rainfall or irrigation following seeding can result in leaching of the Ridomil into the root zone at too high a rate resulting in the phytotoxicity symptoms. Be sure to use the right rate when making a Ridomil application for control of **damping-off** caused by **Pythium.**

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

✔ **Cole Crops:** Maintain applications of maneb every 7-10 days for control of **Alternaria leaf spot** and **downy mildew.**

✔ **Corn (Sweet): Stewart's wilt (bacterial wilt)** is present at high levels in the susceptible white, supersweet variety, 'Nova.' Future plantings should use **bacterial wilt** resistant, white, sugary enhanced varieties, such as, 'Argent' or 'Seneca Snowshoe.'

✔ **Cucumber:** Maintain applications of a copper fungicide + mancozeb every 7 days for control of **angular leaf spot** and the fruit rot phase of **Phytophthora blight.**

✔ **Muskmelon: Drought stress** is evident in some fields at this time. Older leaves turn brown; yet the rest of the plant is normal. Be sure to apply ample irrigation during dry periods to maintain plant turgidity. Maintain applications of Bravo or mancozeb alternated with Quadris for control of **Alternaria blight** every 7-10 days.

✔ **Onion:** Maintain fungicide applications every 7-10 days for the control of **downy mildew, purple blotch,** and **blast** on dry bulb onions.

✔ **Pea: Root rot** is present in several fields at this time. Infected plants have a black, girdling lesion present at the base, and leaves become necrotic from the soil line towards the top of the plant. Rotate away from peas for at least 4-5 years to reduce the incidence of the disease in future years.

✔ **Pepper:** Maintain applications of mefenoxam (Ridomil Gold or Ultra Flourish) every 21 days for the control of **Phytophthora blight.** Remove infected plants as they appear in the field to reduce the incidence of the aerial phase of the disease.

✔ **Potato: Wind damage** is prevalent in the variety 'Atlantic' at this time. Black areas along the leaf edges of several leaves/plant are present. Actively growing plants are susceptible to this type of injury, and it is not a disease.

✔ **Squash (Summer):** Apply Ridomil Gold Copper, Ridomil Gold Bravo or Flouronil as a foliar spray every 14 days for control of **Phytophthora blight.**

✔ **Tomato: Tomato Pith Necrosis** is present in some fields produced on black polyethylene mulch with drip irrigation. This is a bacterial disease favored by high levels of nitrogen in the soil and cool night temperatures. The disease does not spread from infected plants, and there are no control measures available. **Pythium root rot** is present in several fields. Infected plants are wilted or stunted, and there is a large, hollow, tan, girdling lesion present at the base of the plant. Improve the drainage in fields and apply mefenoxam (Ridomil Gold or Ultra Flourish) for control. **Early blight** is present on some plants at this time. Infected leaves contain numerous target-shaped, brown lesions. Alternate Bravo with Quadris every 7-10 days for control. ❑

Produce Growers Directory Update

Pegi Ballister-Howells, New Jersey Farm Bureau

New Jersey Farm Bureau, with the help of a Jersey Fresh grant, is in the process of updating the 1995 Produce Growers Directory. The new format will be internet accessible and will be available on disk. Hard copy can be printed and kept in a three-ring binder. Many new categories have been added. We want to update existing entries, so all farmers must fill out the new form even if you are already in the existing edition. County Agents will be assisting with the mailing of the forms and Farm Bureau will mail out to those members with an interest in produce. If you do not receive a form, and wish to be included in the directory, contact the Farmhouse at 609-393-7163. This buyers' guide has been very well received in the past and is an excellent marketing tool for your fruit and vegetable products. The more farms listed, the more essential the resource will become to potential buyers. There is no charge to be included in the directory. ❑

Vegetable IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

Snap and Lima Beans

Potato leafhopper (**PLH**) adults were observed in a field of fresh–market snap beans in Burlington County. Check bean fields now for the presence of **PLH** adults and nymphs. Using a sweep net, make 10 sweeps in 10 locations in the field. The treatment levels are 5 per sweep during prebloom, 12 per sweep during bloom, or 25 per sweep during pod development. If you don't have a sweep net, check the undersides of the leaves for adults and nymphs. Usually the presence of **PLH** nymphs is an indication that a population is becoming established. **PLH** populations can increase rapidly to damaging levels, especially under hot and dry conditions. Check fields at least once a week for **PLH** adults, and increase monitoring if nymphs begin to show up.

In many areas the **European corn borer** (**ECB**) populations are in decline, but where **ECB** moths are flying (see **ECB** map) snap beans need to be protected in the bud and pin stages to prevent **ECB** infestations.

Peppers

Green peach aphids **are starting to increase in a scouted field in Atlantic County. However,** aphid **predators (ladybugs) were present, and mummified** aphids **were also found. A particularly effective parasitic wasp turns** aphids **into light brown mummified shells. If broad-spectrum insecticide treatments can be avoided (primarily in fields without fruit) these parasites should keep this population below threshold levels.**

Pepper plantings should be protected from **ECB** infestations if moths are flying in your area (see map) and half-inch or greater size fruit are present on the plants. The first generation activity has declined in some areas but some traps continue to show threshold levels (greater than 1/night).

Sweet Corn

ECB adult activity is moderate to high in the northern counties at this time. As the **ECB** adult flight declines in the central and southern counties, larval feeding in whorl and pretassel stage corn will increase. It is important to reduce the larval **ECB** population in sweet corn plantings prior to the onset of full silk, as larvae will have migrated down the stalk and into the ears by that time. Scout fields weekly and follow the action threshold of 12% plants infested. A particularly critical stage to treat sweet corn for **ECB** is from when the tassel begins to spread to first silk. At this time, **ECB** larvae are often exposed in the tassel or on the outside of the stalk.

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

Phillipsburg	17	Chester	8	Jutland	6
Little York	16	Ellisdale	7	Manville	6
Pemberton	12	Sergeantsville	7	Medford	6
Cinnaminson	10	Crosswicks	6	Oldwick	6

First generation adult **CEW** moth levels have increased since last week in many of the southern and central traps (see **CEW** map). Several traps are showing very high levels of moths for this time of year. These adults are probably of local origin, and become more active when we have hot weather. In areas with silking corn and high numbers of **CEW** moths in the traps, make sure to begin insecticide applications at the first sign of silk and maintain strict 3-day spray schedules until this first generation activity declines. In areas where most corn is not yet in the silk stage, check whorl and pretassel plantings for evidence of worm feeding. Threshold levels of feeding damage were found in whorl and pretassel corn. Although the leaf damage looks very similar to **ECB** damage, most of the worms found when the whorl was pulled were **CEW** larvae. The same threshold of 12% plants infested applies.

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

Folsom	24	Hammonton	14	Wall	9
Tabernacle	20	Medford	14	E. Vineland	7
Chapel Hghts.	16	Pemberton	12	Cinnaminson	6
Cohansey	15	Crosswicks	11	Elmer	5

General Sweet Corn Spray Schedule

Silking corn:	North	5 - 6 days
	Central	3 - day
	South	3 - day

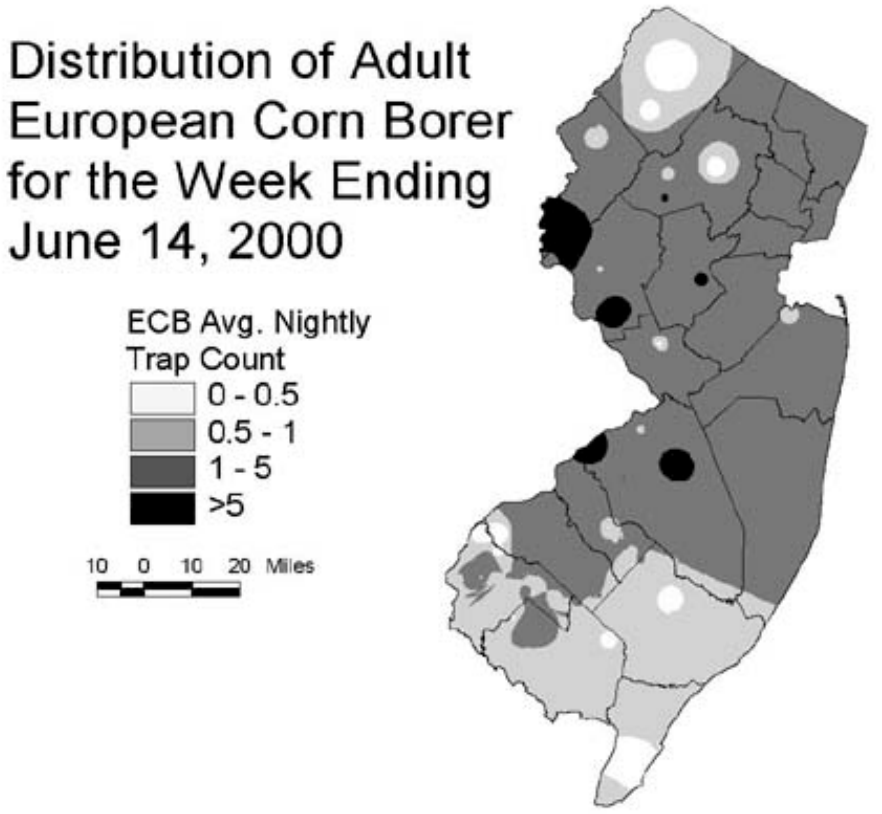
These are general spray recommendations for large areas of the state. Growers can increase or decrease the intervals based on their own local situations.

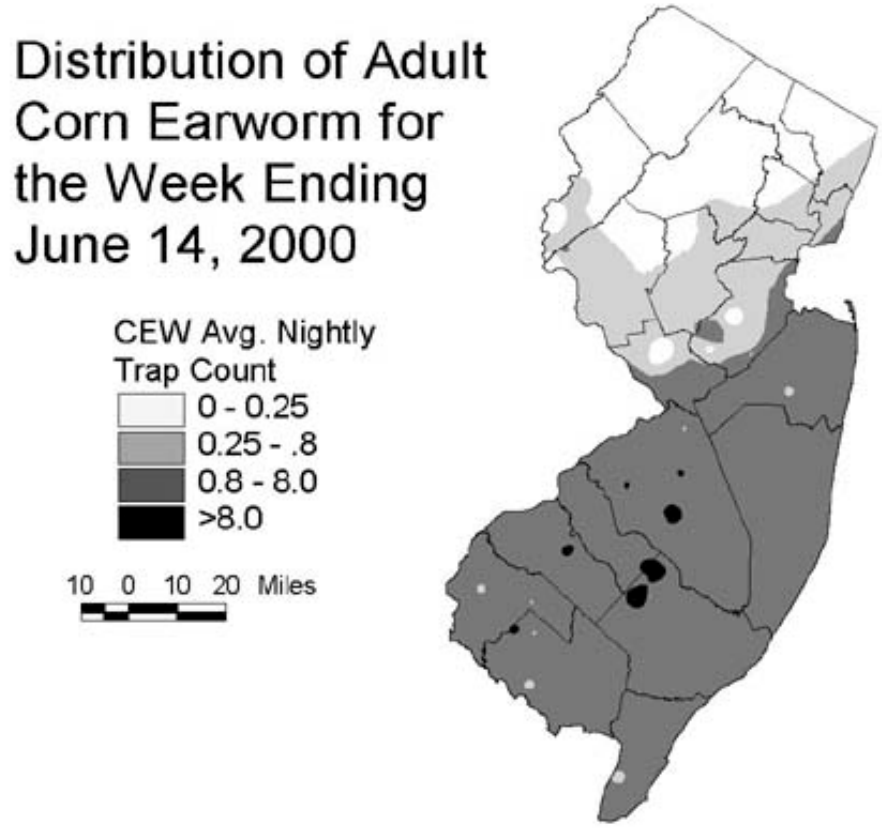
Tomatoes

Green peach aphid is active in tomato fields around the state. As with peppers, this pest is often controlled by natural predators and parasites if broad-spectrum insecticides can be avoided. When **aphid** populations build to levels that result in deposition of their sticky droppings onto lower fruit, however, chemical control is warranted. Scout fields weekly, looking at two whole leaves per plant on 5 plants each in 10 locations. Note whether **aphid** colonies are increasing, and if their droppings are noticeable on lower leaves and fruit.

Blacklight catches of **green stinkbugs** and several other species in the genus *Banasa* have remained steady at low to moderate levels over the last week. The particularly damaging large **brown stinkbugs**

SEE IPM ON PAGE 5





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

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(genus *Euschistus*) have yet to appear in any numbers. In each of the past 3 years, the adult **brown stinkbugs** have appeared in large numbers beginning the last days of June through the first two weeks of July. These adults feed and deposit eggs on plants resulting in further infestations through July and August. Information regarding the movements of these **stinkbugs** will appear in later issues of this publication. ❑

Postemergence Herbicide Injury and the Weather

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

Warm, but not hot temperatures, high humidity and soil moisture, and cloudy weather have resulted in rapid growth and less cuticular wax development on leaf surfaces of many crops and weeds. Growers often call crops growing under these conditions "*soft*".

Crops and weeds are more sensitive to postemergence herbicides and spray additives than they usually are! Weeds are easy to kill, but crop injury is more likely to occur, or may be more severe than usual. Observe the following precautions to minimize the risk of herbicide injury to vegetable crops.

Use the lowest recommended rate of postemergence herbicides when a rate range is suggested.

- Omit spray additives if the herbicide label indicates they are optional.
- Use nonionic surfactants instead of oil concentrates when the herbicide label indicates that either can be used.
- Do not add liquid fertilizers to "heat up" postemergence herbicides.

Delay postemergence herbicide application until 3 to 5 days of bright sunny dry weather has "toughened" the crop unless the weeds must be sprayed before they grow too large to be controlled. Consider alternate weed control methods if temporary cosmetic damage to the crop foliage is unacceptable.

Listed below are commonly used postemergence herbicide treatments for some vegetables and comments on avoiding injury when crops are "*soft*".

Asparagus

Apply Banvel (dicamba) in bearing asparagus to control **annual broadleaf weeds**, including **morninglory spp., ragweed, pigweed, common lambsquarter**, and others, and perennials, including **Canada thistle, bindweed spp.**, and others. Apply one half to one pint of Banvel 4SC per acre after weeds have emerged and are actively growing but before flowers or buds are formed.

Observe a one-day (24-hour) preharvest interval during the cutting season. Unlike 2,4-D, Banvel does *not* affect spear flavor for several days after application. Banvel may be tank-mixed with other postemergence or with residual herbicides at the end of the cutting season.

Use drop nozzles after the cutting season to avoid wetting the fern and to improve coverage of target weeds. Wetting the lower part of the emerged asparagus stalks will not cause injury to the crop.

Use caution during application. Banvel is a growth regulator type herbicide. Do *not* apply Banvel with a sprayer that will be used to spray sensitive crops afterward. It may be difficult or impossible to clean the tank. Spray *or* vapor drift can injure sensitive vegetable or fruit crops in adjacent fields. Avoid use when such crops are growing near the site of application.

Bean (Snap)

Newly emerged snap beans at the unifoliate to first trifoliate leaf stage of growth may be burned on the first bright sunny day without any herbicide treatment. Do *not* use oil concentrates or other spray additives on snap beans. Poast 1.5EC should be applied without oil concentrate or application delayed until the weather changes. Small seedling **grasses** will be effectively controlled without oil concentrate. Basagran applications for **broadleaf weed** and **yellow nutsedge** control should be delayed until the weather improves unless the weeds will grow too large to be controlled. Delay Basagran application until the snap beans have two fully expanded trifoliate leaves. Position the nozzles between the rows and direct the spray to wet only the bottom half of the snap bean plant. Avoid wetting the growing shoot and at least one fully expanded trifoliate leaf to minimize or eliminate risk of crop injury and maturity delay.

Cabbage

Use only the minimum recommended rate of Lentagran 45WP, 1.0 pound per acre (0.45 lb ai/a) if you have any "old" product left over. Note that this rate is only half the labeled rate. Omit any spray additive to further reduce the speckling of leaves that get sprayed.

Corn (Sweet)

Avoid using 2,4-D during these weather conditions. Switch to atrazine and oil concentrate or delay 2,4-D application until the weather improves and use drop nozzles to avoid spraying 2,4-D into the whorl.

Cucurbit Crops

Poast 1.5EC should be applied without oil concentrate or application delayed until the weather changes. Oil concentrate can burn cucurbit leaves when applied alone, without an herbicide when cucurbits are "*soft*". Small seedling **grasses** will be effectively controlled without oil concentrate.

Pepper

Consider applying additional residual herbicides to extend weed control through the harvest season. Devrinol may be sprayed broadcast over the top of peppers grown on bare soil, but drop nozzles that

See Herbicides on page 7

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged above normal. Extremes were 97 at Woodstown and Pemberton on the 12th and 42 degrees at Charlotteburg on the 7th. Weekly rainfall averaged 2.63 inches north, 1.12 inches central, and 0.50 inches south. The heaviest 24 hour total was 2.65 inches at Charlotteburg on the 6th to the 7th. Estimated soil moisture, in percent of field capacity, this past week averaged 86 percent north, 67 percent central and 67 percent south. Four inch soil temperatures averaged 64 degrees north, 68 degrees central and 67 degrees south.

Weather Summary for the Week Ending 8 am Monday 6/12/00

	RAINFALL			TEMPERATURE				GDD	BASE50	MON
WEATHER STATIONS	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
BELVIDERE BRIDGE	2.67	16.54	3.61	93	49	67.	0	620	89	100
CHARLOTTEBURG	3.38	15.47	1.40	92	42	64.	0	457	92	97
FLEMINGTON	1.91	13.95	.55	93	49	70.	2	735	219	86
LONG VALLEY	2.58	14.74	.35	88	49	65.	0	530	117	100
FREEHOLD	1.07	10.27	-3.00	94	48	70.	1	771	178	73
LONG BRANCH	1.68	12.65	-.86	94	50	70.	2	619	83	62
NEW BRUNSWICK	1.57	13.24	.23	94	49	70.	1	741	107	86
PEMBERTON	.64	11.62	-1.10	97	51	75.	6	1098	475	39
TOMS RIVER	1.27	11.48	-1.72	95	49	69.	2	715	178	63
TRENTON	.49	11.60	-.43	93	50	70.	0	796	122	50
CAPE MAY COURT HOUSE	.54	12.99	1.32	92	50	70.	2	735	134	33
DOWNSTOWN	.39	11.84	-.09	94	51	70.	0	810	112	41
GLASSBORO	.48	12.71	-.10	95	53	72.	2	888	211	45
HAMMONTON	.35	10.24	-2.23	95	50	69.	-1	767	99	29
POMONA	.36	9.82	-1.69	94	50	70.	1	722	116	37
SEABROOK	.56	13.40	2.20	94	53	72.	2	883	180	43
ATLANTIC CITY MARINA	.83	11.04	.15	86	52	69.	2	736	181	44
WOODSTOWN	.44	14.57	1.87	97	51	71	NA	899	NA	NA

WES KLINE — GDD BASE 40 PINEY HOLLOW
Last Week 175 (Ending 6/5/00)
This Week 209 (Ending 6/12/00)

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direct the spray under the peppers improves the coverage. Irrigate within 2 days of application to activate the herbicide and prevent loss by breakdown by sunlight.

Add Gramoxone with a drift control additive to control emerged weeds when banding herbicides between strips of plastic mulch with a shielded sprayer. Do *not* use without shields and a drift control additive! Spray drift *will* injure pepper foliage and fruit. Do *not* use on peppers grown on bare soil.

Tomatoes

Delay the application of Sencor/Lexone until after 3 to 5 days of bright sunny dry weather has "toughened" the crop. Never use spray additives with Sencor/Lexone. ❑

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