

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

JUNE 7, 2000



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Pest Notes

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

✓ **General:** The **European corn borers** have slowed somewhat, and are at a level that would be considered "average" for this time of the year (5-7 **moths** per night in local traps). However, it is best to stay abreast of the activity of this pest as it can rapidly change as the warm weather starts again. Small peppers (greater than an inch and a half in diameter) may be at risk at this time of the year if the borer population increases again. Hopefully, potato plants will be beyond the susceptible growth stage for **borer** preference (if they were planted early enough).

Also, the **corn earworm** activity is increasing throughout the mid-Atlantic region (Delaware reports an average of 11 **moths** per night being trapped). At the Rutgers Research Farm in Bridgeton, many **moths** can be found hiding amount the potato foliage in the research plots, likely seeking refuge until the warmer temperatures arrive. This pest can be damaging to tomatoes (small and large green tomatoes), peppers, lettuce, and other vegetable crops. To avoid potential damage, scout the fields for either eggs or small larvae at this time.

✓ **Cabbage and related crops:** A low infestation of **imported cabbageworms** is reported in some areas. These pests are readily managed using any of a variety of pest control materials, including many different brands of biological pesticides (the "*Bt*'s") that are available. **Imported cabbageworms** have not demonstrated resistance to any material, including the *Bt*'s. A few **diamondback moth** larvae have been reported by the IPM scouts, and these pests are a little more difficult to control than the other pests of cabbage. Treat for **diamondback moth** larvae before the populations get too large, and before the larvae become full grown. Obtain thorough coverage on all leaf surfaces. If a *Bt* is used, apply it after temperatures reach at least 75°F for best results. Consult the *2000 Commercial Vegetable Recommendations for New Jersey* for more information concerning management of **diamondback moth** larvae.

✓ **Cucurbit:** Neighboring states report that **spider mites** are reaching high population levels in melons and other cucurbits. Populations of **spider mites** virtually explode when long cool periods are followed by bursts of sudden hot weather. **Spider mites** are readily controlled with Agrimek, Capture, or Kelthane on melons if the application is made before the population becomes unman-

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ageable. Treat when 10-15% of the crown leaves are infested at this time.

✓ **Eggplant:** Several growers have had high populations of **flea beetles** attacking their eggplant. Damage is often not noticed until the leaves have many small holes, which become larger as the plant grows. The holes begin to rip and shred during windy days, and if there are numerous holes, the leaf begins to desiccate. Look for **flea beetle** adults on the upper leaf surfaces during a calm, sunny day. All of the listed insecticides are effective against **flea beetles**, including the pyrethroids (Capture, Asana XL, etc.). These beetles are very active and readily jump great distances, so thorough coverage of the plant with the spray material is recommended.

✓ **Potato:** The early application of Admire 2F (either at planting or as a seed treatment) should be beginning to show signs of lower effectiveness. If either the **Colorado potato beetle** adults or larvae are present, it likely means that the at-plant applications are no longer toxic to the beetles. Monitor the fields closely, every day or so, to determine when this point is reached. Then it is important to watch for both **potato beetle** and **potato leafhopper** development. Delaware reports high levels of both **leafhopper** adults and nymphs in some potato fields. They also report that effective materials for **leafhopper** control include dimethoate, Thiodan, and the pyrethroids (especially Baythroid EC). If there are adults and/or nymphs, be especially alert when the weather turns hot again, as these pests are very damaging and can reach high population levels very quickly. Once the **leafhoppers** damage the potatoes, there is little that can be done to correct it. □

Vegetable IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

Peppers

Large numbers of **European corn borer (ECB)** egg masses (27/50 transplants) continue to be found in a field in Salem County. Monitor plantings for evidence of **ECB** egg masses on the undersides of the leaves. Plantings with fruit greater than one-half inch in size are at risk for infestation if **ECB** adult blacklight counts are greater than 1 per night in your area (see **ECB** map). Also monitor fields for the presence of **aphids** on the undersides of the leaves. The threshold we use is 1-2 aphids/leaf. If **aphid** counts are increasing, consider the presence of natural control before applying aphid materials, particularly if you see the mummified **aphids** (light brown **aphid** shells attached to the leaf).

Sweet Corn

Threshold levels of **ECB** feeding (12% plants infested) are being found in older whorl stage plantings in southern and central counties. In northern areas, plantings in plastic mulch are at greatest risk for early whorl infestation. While sporadic high counts are still occurring in the southern counties, the adult population in these areas seems to be in decline. Higher trap catches are common now in the northern Burlington and Ocean county areas (see **ECB** map).

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

New Egypt	15	Centerton	10	Crosswicks	7
Allentown	11	Cinnaminson	9	Millstone	6
Ellisdale	11	Pemberton	8	Elmer	5
Chapel Heights	11	Sergeantsville	8	Hopewell	5

The adult counts of **corn earworm (CEW)** have also increased significantly in the southern counties (see **CEW** map). In areas where sweet corn is silking, spray schedules are warranted.

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

Cohansey	9	Folsom	3	Elm	2
Cinnaminson	6	Indian Mills	3	Pedricktown	2
East Vineland	5	Laurel Hills	3	Seabrook	2
Hammonton	4	Centerton	2	Springdale	2

Significant **slug** injury to seedling stage sweet corn has been found this week in several central and northern New Jersey plantings. These plantings are conventionally tilled, with little or no surface debris. Numerous **slugs** may be found under any stone or soil clump on the surface. **Slug** damage on seedlings has the appearance of rootworm beetle feeding, but the slime trail from the slug is easily spotted. Recent cool, wet weather is most likely responsible for this occurrence. It is likely that warmer, drier weather will curtail **slug** activity in the fields, particularly after the fields are cultivated. If cultivation of the affected planting is not possible and damage is severe, consider using a product labeled for **slug** control in corn. Consult the slug section of the *2000 Commercial Vegetable Production Recommendations* for suggestions.

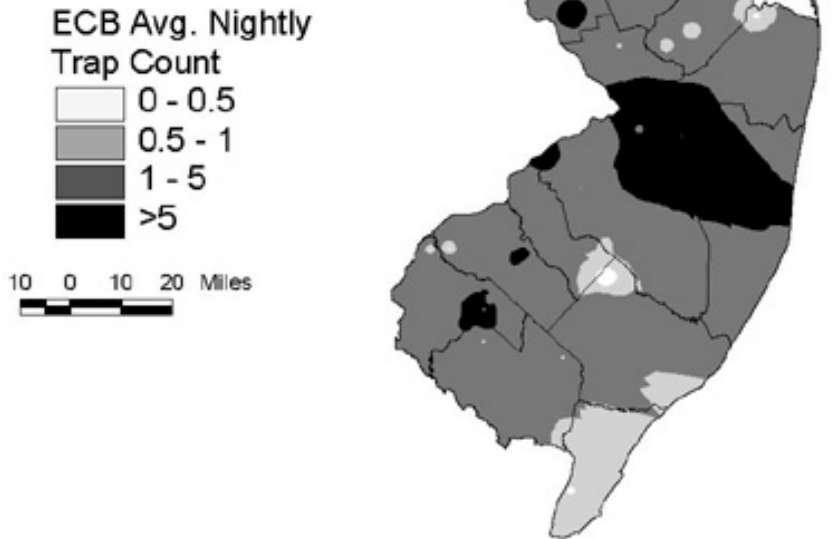
General Sweet Corn Spray Schedule

Silking corn: South 3 – 4 days

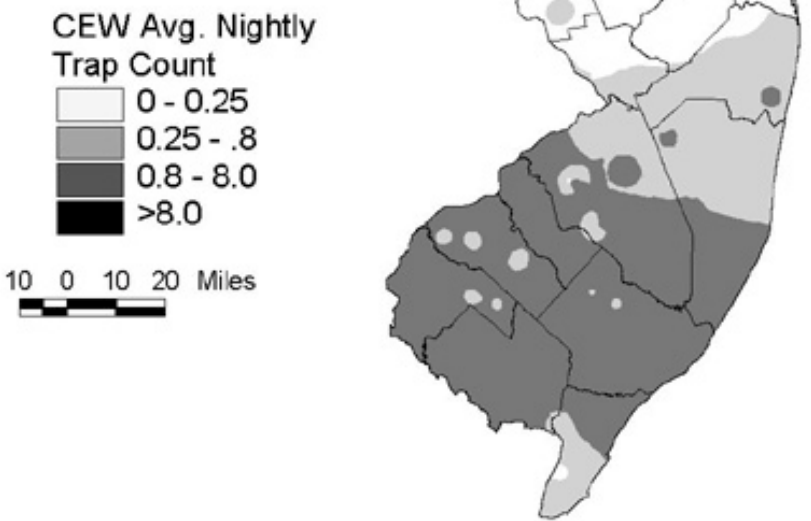
*These are general spray recommendations for large areas of the

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Distribution of Adult European Corn Borer for the Week Ending June 7, 2000



Distribution of Adult Corn Earworm for the Week Ending June 7, 2000



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

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state. Growers can increase or decrease the intervals based on their own local situations.

Tomatoes

In Sussex County, a low level **two-spotted spider mite (TSSM)** infestation was found in tomatoes grown in a high tunnel. This is an indication that **TSSM** activity may soon start on other hosts such as eggplant that are now being transplanted. Early detection of this pest may allow effective spot treatments. Scout plantings weekly, looking at two full leaves per plant on 5 plants in 10 locations. Be sure to include samples from field edges, particularly if the planting is bordered by weeds, as this is often where **mites** will enter the field. Look for a whitish "stipple" on the upper surface of leaves and webbing between veins on the lower surface.

White Potato

Check susceptible fields (primarily early planted fields) for signs of **ECB** infestations (entry holes in the stems, flagging terminals). If **ECB** is going to be a problem, the signs of infestation should be visible now. Also make sure to regularly (at least once a week) check fields for **potato leafhopper (PLH)** activity. **PLH** adult sweep net counts have gradually been increasing, but with hot and dry conditions populations can quickly exceed threshold levels. Using a sweep net, take 10 sweeps in 5 random sites in the field. The threshold level is 25-50 adults per 50 sweeps. Check also for **PLH** nymphs on 5 leaves in 10 random locations and treat if levels exceed 5 nymphs per 50 leaves. Populations can be very localized, so make sure to check all fields.

Vegetable Crops Diseases

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

✓ **Asparagus:** Now is the time to stop harvesting for the season. Harvesting beyond an 8-week harvest period will stress the planting, and make plants susceptible to **Fusarium root & crown rot**. During the summer months maintain adequate soil moisture levels with irrigation to reduce drought stress, and maintain insect control to reduce stress from defoliation. A planting will remain productive for many years if it does not undergo stress during the summer months.

✓ **Basil: Bacterial leaf spot** is present in some fields at this time. Dark black irregularly shaped lesions are scattered over older leaves. Avoid working in infested fields when the foliage is wet to reduce spread of the disease.

✓ **Beans (fava): Bacterial blight** is present on pods at this time. Infected pods are covered with small, black, sunken lesions. Avoid working in fields while the foliage is wet.

✓ **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 severe in some fields at this time. Infected plants are wilted, and light green to yellow stripes appear on leaves. Strict control of **flea beetles** beginning at emergence is essential to prevent transmission of **Stewart's wilt**.

✓ **Cucumber:** Maintain control of **cucumber beetles** from emergence until flowering to prevent transmission of **bacterial wilt**. Maintain applications of a copper fungicide + mancozeb every 7 days for control of **angular leaf spot** and to assist in the control of the fruit rot phase of **Phytophthora blight**.

✓ **Muskmelon:** Maintain control of **cucumber beetles** from emergence until flowering to prevent transmission of **bacterial wilt**. Once the vines begin to run, apply foliar fungicide applications every 7-10 days for control of **Alternaria blight**. Alternate Bravo or mancozeb with Quadris.

✓ **Onion:** Now is the time to begin fungicide applications on dry bulb onions for control of **downy mildew, purple blotch** and **blast**. Make applications every 7-10 days.

✓ **Pepper: Phytophthora blight** and **Pythium root rot** are present in fields at this time. Both diseases cause infected plants to wilt. **Phytophthora** infected plants have a black, girdling lesion present at the soil line; while, **Pythium** infected plants have brown roots in which the cortical tissue slips off the

Farmers Needed for Wildlife Damage Study

David Drake, Ph.D., Wildlife Management

Rutgers Cooperative Extension is currently conducting a study to assess damage to a variety of agricultural crops. We have put up roughly 70 enclosures so far and expect to put up another 30 - 50. However, we need to locate farmers who are experiencing wildlife damage (ranging from some to a lot) to their crops. We are looking for farmers who are currently growing strawberries, apples, leafy vegetables, and nursery stock. We will be looking for

SEE WILDLIFE DAMAGE STUDY ON PAGE 5

central root core (steele). Maintain applications of mefenoxam (Ridomil Gold or Ultra Flourish) every 21 days. Improve the drainage in the field in order that water does not accumulate around plants. Remove infected plants from the field to reduce incidence of the aerial phase of **Phytophthora blight**.

✓ **Pumpkin & winter squash:** Select well-drained fields with no low areas for production to reduce the occurrence of **Phytophthora blight**. Consider using **powdery mildew** resistant varieties, 'Magic Lantern' and 'Mystic' to reduce the severity of the disease later in the season.

✓ **Spinach: White rust** incidence has increased this week. Apply Quadris for control. Quadris use in New Jersey is allowed under a crisis exemption. Fungicide distributors have a copy of the label available for use patterns and directions.

✓ **Squash (summer): Phytophthora blight** is prevalent at this time. The majority of infection is the result of the aerial phase of the disease. Infected plants have a black lesion encompassing the upper crown portion of the plant, and the lesion extends up the petioles of all of the leaves emerging from the top of the crown. The entire plant eventually wilts and dies. Remove infected plants or disc into the soil to reduce spread to the rest of the field. Apply Ridomil Gold Copper, Ridomil Gold Bravo or Floutronil as a foliar spray every 14 days for control.

✓ **Tomato: Bacterial spot** is present in some fields at this time. Infected plants have numerous leaves that contain black, angular-shaped lesions scattered over the surface. Avoid working in fields while the foliage is wet, and apply a copper fungicide + mancozeb every 7 days for control.

✓ **Watermelon:** Once vines begin to run, apply fungicides every 7-10 days for control of **gummy stem blight** and **anthracnose**. Alternate Bravo with Quadris for control. □

Wildlife Management Twilight Meeting

Raymond J. Samulis, Burlington County Agricultural Agent

It comes as no surprise to farmers that wildlife damage to New Jersey farms is on the rise. Natural pest populations are increasing and urbanization has greatly reduced normal animal habitats. Deer, geese, swans, ground hogs, and grackles all raise havoc and cause severe economic losses. Rutgers Cooperative Extension of Burlington County has developed a Wildlife Management Twilight Meeting to share the latest techniques and devices to better deal with wildlife problems. The Rutgers Wildlife Damage Specialist, as well as state and local Fish and Game personnel will give demonstrations. This Twilight Program will be held the evening of June 19, 2000, at 7:00 p.m. on a farm just outside Mt. Holly. While this program was designed for Burlington County farmers, growers from other counties with severe wildlife problems or just interested in wildlife damage are welcome to attend. Out of county growers can call our office at (609) 265-5050 for directions.

Growers attending the meeting can anticipate learning the most comprehensive wildlife damage information available, enjoy refreshments, and direct discussions with knowledgeable experts and growers experiencing the same problems as you are. Why not come out and experience the latest in an ongoing struggle? ☐

WILDLIFE DAMAGE STUDY FROM PAGE 4

other fruit and vegetable crops, forage crops, and grains as they are nearing harvest. The USDA assessment techniques can only be used when the crop is mature and nearing harvest or actually being harvested. You cannot be using fencing or any other type of crop protection, as this will bias our results. We will not interfere with any farming practices. We need to assess damage from all types of wildlife (i.e. groundhogs) and not just deer and geese. Please contact your county agricultural agent about participating in the study. ☐

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged below normal. Extremes were 96 at Pemberton on the 2nd and 39 degrees at Charlotteburg on the 30th. Weekly rainfall averaged 0.14 inches north, 0.12 inches central, and 0.02 inches south. The heaviest 24 hour total was 0.35 inches at Toms River on the 2nd to the 3rd. Estimated soil moisture, in percent of field capacity, this past week averaged 80 percent north, 71 percent central and 66 percent south. Four inch soil temperatures averaged 61 degrees north, 63 degrees central and 62 degrees south.

Weather Summary for the Week Ending 8 am Monday 6/5/00

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC	
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP		
BELVIDERE BRIDGE	.23	13.87	1.84	89	46	64.	-1	498	81	72	
CANOE BROOK	.15	9.78	-3.43	92	48	64.	-1	570	190	76	
CHARLOTTEBURG	.15	12.09	-1.00	88	39	60.	-2	355	85	69	
FLEMINGTON	.04	12.04	-4.8	90	47	65.	-1	595	196	79	
LONG VALLEY	.15	12.16	-1.32	86	46	61.	-2	423	111	74	
FREEHOLD	.07	9.20	-3.26	90	50	65.	-2	629	161	71	
LONG BRANCH	.00	10.97	-1.81	91	50	63.	-3	477	61	53	
NEW BRUNSWICK	.09	11.67	-.58	91	48	65.	-3	603	101	78	
PEMBERTON	.02	10.98	-.90	96	52	70.	3	922	426	44	
TOMS RIVER	.37	10.21	-2.20	93	49	63.	-1	580	150	68	
TRENTON	.16	11.11	-.17	90	50	65.	-3	656	107	58	
CAPE MAY COURT HOUSE	.01	12.45	1.52	90	48	63.	-3	596	107	63	
DOWNTOWN	.08	11.45	.25	91	48	65.	-3	671	108	52	
GLASSBORO	.00	12.23	.26	92	43	66.	-2	735	192	53	
HAMMONTON	.01	9.89	-1.76	91	47	64.	-4	630	95	57	
POMONA	.01	9.46	-1.31	90	47	63.	-3	582	118	57	
SEABROOK	.00	12.84	2.45	92	51	66.	-2	730	162	50	
ATLANTIC CITY MARINA	.00	10.21	-.01	83	53	63.	-2	599	160	49	
WOODSTOWN	.07	14.13	2.31	94	46	67	NA	754	NA	NA	
WES KLINE — GDD BASE 40 PINEY HOLLOW	Last Week 154 (Ending 5/29/00)			This Week 175 (Ending 6/5/00)							

EPA Increases Risk Estimate of Pesticide Dursban

David Brown and Joby Warrick, Washington Post Staff Writers

Excerpted from The Washington Post, June 1, 2000.

The Environmental Protection Agency has concluded that one of the most commonly used pesticides, a compound sold as Dursban and found in dozens of home-and-garden products, may be more dangerous to people than previously thought, according to sources familiar with the decision.

The EPA's conclusion, which is expected to be announced June 8, will effectively remove the pesticide, also known as chlorpyrifos, from all over-the-counter products. Although farmers will still be allowed to spray it on crops, the chemical's agricultural use will be reduced to a degree not yet decided. Whether professional exterminators will be allowed to employ it to kill termites, ants and cockroaches is uncertain.

The move culminates the most extensive scientific assessment of a pesticide in EPA history, and one of the more contentious. Last October, the agency proposed making the acceptable exposure level of chlorpyrifos one-third of what it is currently. Now the level will be even more stringent: one-tenth of what's currently allowed.

The decision is part of a systematic review of the safety of pesticides EPA is required to make under the 1996 Food Quality Protection Act. The law is designed to protect children in particular from the toxic effects of pesticides. The newly estimated hazards of chlorpyrifos are based on experiments showing the substance can cause brain damage in fetal rats, not on human studies.

The pesticide is a member of the organophosphate family of compounds, whose most potent cousins include nerve gases used as chemical weapons. Its only American manufacturer is Dow Chemical Co. About 800 consumer products contain the compound. They include Ortho Lawn Insect Spray, Real Kill Wasp & Hornet Killer II, and Spectracide Dursban Indoor & Outdoor Insect Control. The EPA has determined that the compound poses no imminent threat to public health, and consequently won't order a recall of products containing it.

About 11 million pounds of chlorpyrifos are used each year by farmers and fruit growers; about 5 million pounds by industrial, commercial and government buyers; and about 3 million pounds by the home-and-garden market.

Public concern about pesticide exposure - and the

expectation of further government regulation - has driven many users of the compound in the last few years to find alternatives. For example, some dog and cat flea collars now contain insecticides called pyrethroids instead of chlorpyrifos. Many exterminators use chemical baits rather than pesticides to rid houses of termites.

"Dursban is still an important product, but not the most important product in every category," said Mancer Cyr, a consultant with Kline & Co., a Little Falls, NJ, company that gathers market data for the chemical industry. In the home-and-garden market, about half the chlorpyrifos used is bought by consumers and half is applied by exterminators and lawn care companies, he said.

Crucial in the EPA's decision was a study by Dow - one of more than 100 the company was required to perform - that showed brain damage in fetal rats whose mothers were given the compound.

Normally, EPA sets a safe exposure level for a pesticide such as chlorpyrifos at one one-hundredth of the maximal concentration at which there are no detectable effects on an adult animal. Under the 1996 law, however, that hundred-fold safety margin is increased ten-fold more if there is any evidence that infants or children are especially vulnerable to a pesticide. The detection of "neurodevelopmental effects" in the rats triggered that part of the regulation.

The level of chlorpyrifos that will now be deemed safe for children will be one one-thousandth of the "no-effect level." Such a stringent level effectively rules out home use of chlorpyrifos because consumers couldn't use the chemical without bumping up against that very low ceiling.

EPA is negotiating with Dow Chemical over what uses of chlorpyrifos will be permitted. If the manufacturer (and its customers) don't voluntarily agree to restrict its use to reach the new exposure level, the agency can force the restriction. □

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