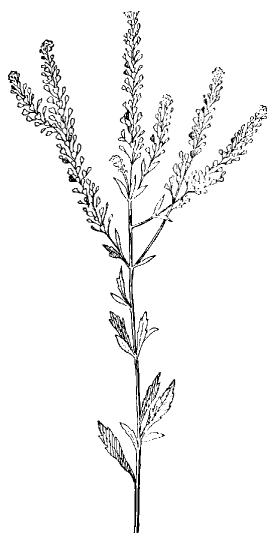


PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

SEPTEMBER 29, 1999



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The Importance of Controlling Weeds

Joe Ingerson-Mahar, Vegetable IPM Coordinator

In vegetable production, weed control is less a concern than disease and insect control. Nevertheless, controlling weeds is essential for a successful pest management program. There are zero tolerance weeds for each crop that seriously compete with crops or interfere with harvests and should not become established. New, invading species should also be removed before they become established.

Besides competing for water, space, sunlight and nutrients, weeds often serve as hosts for a variety of pests, as the following examples illustrate. A study conducted at Ohio State University and reported in the *Kentucky Pest News*, August 30, 1999, emphasizes the need to manage all pests in a cropping system. Researchers at Ohio State were looking at the transmission of plant viruses by aphids in pumpkins. They first identified eight aphid species present and rated their ability to vector viral diseases including watermelon mosaic, the most prevalent disease in the study.

The researchers found several annual and perennial weeds in and around the fields acting as reservoirs for diseases, including shepherds purse, Virginia pepperweed, field bindweed, dandelion, purple deadnettle, and goldenrod. Winged aphids carried the viral diseases from the weeds to the pumpkins. There are no control measures that directly affect viral diseases so the diseases must be managed by reducing the aphid and weed populations.

Recently, I found an association between damaging carrot beetles and common ragweed in sweet potatoes. Carrot beetles are 1/2 to 3/4 inch long scarab beetles (similar to May beetles) that are pests of the roots of several crops. In sweet potato fields, these beetles are attracted to and feed on the roots of large, common ragweed plants, one of the more common weeds in the fields. They also feed on the potato roots that are in close proximity to the ragweed, causing large, shallow excavations on the potatoes. Potato roots 9 inches or more away from the ragweed plant are undamaged. These beetles do not occur on lambquarter, pigweed, or other weeds. Remove the ragweed and presumably the carrot beetle damage should also be removed.

Other examples of weed-pest interactions can be given, such as plant parasitic nematodes and weeds, and soil-borne diseases and weeds. Now is the time of year to produce a final weed map. Farm-

SEE WEEDS ON PAGE 2

Determine Lime Needs Prior to Spring Planting

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

Fall is an excellent time to soil test to determine the need for, and type of, lime to apply to neutralize soil acidity and maintain adequate supplies of calcium and magnesium. Careful attention to liming prior to planting is very important. Once the crop is established it is difficult to correct a soil acidity problem using surface applications of lime. Because lime is slow to react in soil, it should be applied at least six months in advance of planting to insure that the target soil pH has been achieved.

Lime can be applied at any time of the year if weather and soil conditions permit. Fall applications have the advantage of allowing the lime to react in the soil prior to the start of the next growing season. □

WEEDS FROM PAGE 1

ers can map their fields indicating where perennial weeds and other noxious or problem weeds occur to develop management strategies for next year. Controlling weeds is an important component of a successful pest management program. □

IPM Update

Kristian Holmstrom and Sarah Walker, Program Associates in Vegetable IPM

Cole Crops

Diamondback and **cabbage looper (CL)** larvae were found feeding on processing collards in Cumberland and Burlington counties. **Imported cabbageworm** butterflies were seen flying in fields, and egg laying was observed but no larvae were found yet. Monitor fields at least weekly for the presence of worms and treat if 12% of the plants are infested with any larvae. Also monitor plants for the presence of **aphids**, and consider the presence of natural control (ladybugs and other predators and parasites) before deciding on an **aphid** treatment.

Lettuce

Although **corn earworm (CEW)** adult population levels have declined in the last week, continue to monitor lettuce plantings for the presence of **CEW** larvae. Cooler weather will slow egg hatch and feeding, but the potential for infestation remains in some areas (see sweet corn section for local trap counts). Look for larvae on the undersides of leaves and in the heart leaves and control infestations prior to head formation. The suggested threshold is 1 larvae per 30 plants.

Peppers

Blacklight trap catches of adult **European corn borer (ECB)** have declined with the cooler weather, and in most areas **ECB** activity is finished for the season. Blacklight trap catches of **CEW** and pheromone trap catches of **beet armyworms (BAW)** and **fall armyworms (FAW)** are variable throughout the southern counties but are mostly low to moderate. Until the weather consistently stays cooler and pest populations remain low for at least a week, a weekly spray schedule is recommended to keep fruit free of infestation.

Spinach

Regularly scout fields for the presence of **BAW**, **webworms**, and **CL**. **BAW** pressure is much lower than last year at this time. Adult activity in pheromone traps is low and larvae are not easily found in the field. **Webworm** larvae are more commonly found, especially in some unsprayed plantings. **Webworms** can be difficult to find as they feed close to the base of the plant and are usually wrapped in webbing material. Check 10 plants in 5 to 10 locations and consider a treatment if 5% of the plants are infested with small larvae.

Sweet Corn

The **ECB** adult population has declined to levels below 1/night in most traps in the southern counties. Catches of adult **CEW** moths have decreased significantly in most southern traps, but are still at levels that require regular silking spray schedules. For most of the state a 3-4 day silking spray schedule should be adequate for any remaining sweet corn. The highest average nightly **CEW** blacklight trap catches for the southern counties are:

| | | | |
|-----------|---|----------------|---|
| Centerton | 8 | Hammonton | 4 |
| Sewell | 5 | Chapel Heights | 2 |
| Elmer | 4 | Cape May | 2 |
| Medford | 4 | Cedarville | 1 |

Pest Notes

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

✓ **Cabbage:** The cabbage fields at the Rutgers Agricultural Research and Extension Center have a mixture of **cabbage looper**, **imported cabbage-worm** and **diamondback moth** larvae on the plants, causing moderate leaf feeding damage. The populations of each are still relatively low, although larval numbers are increasing for each of these. Monitor fields, and treat with a pesticide if 20% or more of the plants are infested with any worm species before heading, and if 5% or more of the plants are infested after heads have formed. Many materials are labeled for control of worms on cabbage, including both conventional and biological insecticides. For a listing of recommended materials, consult pages 81-82 of the *1999 Commercial Vegetable Recommendations for New Jersey*. Note that a new pesticide registration has been granted for worm control in cole crops: Confirm 2F (use 8 fl oz per acre). This material is an insect growth regulator, and is effective against the cabbage worm pests.

Remember that it is very important in cabbage to obtain thorough leaf coverage with the spray (especially the undersides).

✓ **Lettuce:** The numbers of **corn earworm moths** caught in blacklight traps has declined recently, possibly because of the cool, windy nights associated with the recent storm fronts. Lettuce in the 5 - 17-leaf stage needs to be protected from **earworm** attack as well as from **aphids**. Once the plant has formed a head, control of these pests in the head is not possible. For **corn earworm**, effective materials include Ammo, Fury, Warrior, Mustang, Pounce, Ambush and Warrior (all pyrethroid class insecticides) and Lannate. For **aphids**, use dimethoate, Lannate, MSR, or Orthene (note Orthene has a 21-day to harvest restriction).

✓ **Potato:** Although too late for this season, pymetrozine (Fulfill WP) is now labeled for **aphid** control in potatoes and other tuberous crops. This material is a new class of insecticide, and is effective against **aphids** and **whiteflies**. It shuts down the ability of **aphids** to suck up plant juices through their mouth parts, and has had great success experimentally against **green peach aphids** and **potato aphids** in various trials throughout the Atlantic region. □

Vegetable Crops Diseases

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

✓ **Asparagus:** Maintain applications of mancozeb for protection against **purple spot & rust**.

✓ **Bean (Snap):** Maintain a 7-day schedule with Bravo for the control of **rust**.

✓ **Cole crops:** Maintain applications of Bravo or maneb for control of **Alternaria leaf spot & downy mildew**.

✓ **Carrot:** Maintain applications of Bravo or Benlate every 10 days for the control of **Alternaria & Cercospora blights**.

✓ **Cucumber:** Apply Bravo + Nova for control of **anthracnose, downy mildew & powdery mildew**. Alternate with Quadris every 7 days for season long control.

✓ **Eggplant:** Maintain applications of a copper fungicide + maneb with a spreader sticker for control of **Phomopsis & Phytophthora fruit rots**.

✓ **Greens:** Maintain applications of Aliette for control of **downy mildew**.

✓ **Leeks:** Maintain applications of Bravo every 10 days for control of **purple blotch**.

✓ **Lettuce:** **Escarole Necrosis Virus** is present in escarole at this time. Infected plants turn completely yellow. The virus is spread by **aphids**. For control of **drop**, apply Ronilan or Rovral as a directed spray to the base of the plants and surrounding soil beginning shortly after thinning, 10 and 20 days later. Rovral will also provide control of **bottom rot**. Do not cultivate after the last fungicide application in order not to disturb the layer of fungicide between the soil surface and the bottom of the leaves.

✓ **Onion, (Bunching):** Maintain applications of Bravo every 7-10 days for control of **foliar diseases**.

✓ **Pepper:** Maintain applications of a copper fungicide + maneb with a spreader sticker every 7 days for protection against the fruit rot phase of **Phytophthora blight**. This is particularly important when using the resistant variety, Paladin. Paladin is resistant to the crown rot phase of the disease, but is susceptible to the aerial and fruit rot phases of the disease.

✓ **Potato (Sweet):** For control of **surface rot**, minimize injury during harvest. Cure as soon as possible at 80°-85°F and 90% relative humidity for 6-8 days. After curing, temperature should be lowered to 55°F with relative humidity maintained at 85% in the storage facility.

✓ **Pumpkin & Winter Squash:** Maintain applications of Bravo + Nova, and alternate with Quadris every 7 days for control of **downy mildew, powdery mildew & black rot**.

SEE DISEASES ON PAGE 4

Farmer Pleads Guilty to Pesticide Crime

Source: Press Advisory, 9/23/99

Kap Dong Kim, owner of a ginger root farm in Hilo, Hawaii, pleaded guilty on September 13, in U.S. District Court in Honolulu to illegally using the restricted use pesticide "Nemacur" on his ginger root crop in violation of the Federal Insecticide, Fungicide and Rodenticide Act. Kim also admitted to misleading a government official in order to conceal his crime. Kim directed workers to apply Nemacur to his ginger root crop, even though Nemacur is prohibited for use on ginger root. After the worker was injured, Kim deliberately failed to disclose that his worker had applied Nemacur when questioned by an Hawaii Department of Agriculture official who was conducting the investigation. When sentenced, Kim faces a maximum term of up to 5 years 1 month imprisonment and/or a fine of up to \$255,000. The case was investigated by EPA's Criminal Investigation Division, the Hawaii Department of Agriculture with the assistance of EPA's National Enforcement Investigations Center, and is being prosecuted by the U.S. Department of Justice. □

DISEASES FROM PAGE 3

✓ **Spinach:** Scout fields for the presence of **white rust**. Once observed, apply the lowest labeled rate of a copper fungicide for control.

✓ **Squash (Summer):** Maintain applications of Ridomil Gold MZ or Ridomil Gold/Bravo + Nova, and alternate with Quadris every 7 days for control of **Phytophthora blight, downy mildew & powdery mildew**.

✓ **Tomato: Buckeye rot** is severe in processing and fresh market fields. No control measures are available at this time. Applications of Ridomil formulations beginning at 8 weeks prior to harvest are recommended in future years. Maintain applications of Bravo alternated with Quadris every 7 days for control of **leaf blights & anthracnose**. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal. Extremes were 81 at Toms River and Woodstown on the 26th and 38 degrees at Charlotteburg on the 26th. Weekly rainfall averaged 0.45 inches north, 0.40 inches central, and 0.36 inches south. The heaviest 24 hour total was 0.50 inches at Pemberton on the 20th to the 21st. Estimated soil moisture, in percent of field capacity, this past week averaged 95 percent north, 87 percent central and 83 percent south. Four inch soil temperatures averaged 61 degrees north, 63 degrees central and 64 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/27/99

| WEATHER STATIONS | RAINFALL | | | TEMPERATURE | | | | GDD BASE50 | | MON %FC |
|----------------------|----------|-------|--------|-------------|----|-----|-----|------------|-----|---------|
| | WEEK | TOTAL | DEP | MX | MN | AVG | DEP | TOT | DEP | |
| BELVIDERE BRIDGE | .40 | 25.95 | -2.10 | 77 | 44 | 59. | -1 | 2975 | 396 | 89 |
| CHARLOTTEBURG | .48 | 28.11 | -1.66 | 77 | 38 | 56. | -1 | 2496 | 442 | 92 |
| FLEMINGTON | .46 | 25.38 | -2.77 | 78 | 47 | 60. | 0 | 3101 | 443 | 91 |
| LONG BRANCH | .33 | 22.09 | -5.56 | 80 | 45 | 62. | 0 | 3065 | 292 | 74 |
| NEW BRUNSWICK | .47 | 27.02 | -.78 | 79 | 47 | 62. | 0 | 3267 | 308 | 90 |
| PEMBERTON | .53 | 26.99 | -1.01 | 80 | 42 | 62. | 0 | 3368 | 467 | 77 |
| TOMS RIVER | .08 | 14.07 | -14.21 | 81 | 45 | 62. | 0 | 3082 | 304 | 62 |
| TRENTON | .60 | 30.94 | 4.64 | 79 | 42 | 60. | -3 | 3021 | -59 | 82 |
| CAPE MAY COURT HOUSE | .11 | 16.99 | -7.55 | 79 | 47 | 63. | -2 | 3309 | 487 | 65 |
| DOWNTOWN | .41 | 26.11 | .39 | 79 | 46 | 62. | -2 | 3298 | 200 | 78 |
| HAMMONTON | .21 | 25.01 | -2.03 | 80 | 47 | 62. | -1 | 3279 | 210 | 68 |
| POMONA | .32 | 21.44 | -2.96 | 80 | 46 | 63. | 1 | 3254 | 404 | 71 |
| SEABROOK | .76 | 29.58 | 4.78 | 78 | 48 | 63. | -1 | 3474 | 356 | 81 |
| WOODSTOWN | .71 | 35.02 | 8.52 | 81 | 44 | 64 | NA | 3607 | NA | NA |

WES KLINE — GDD BASE 40 PINEY HOLLOW

Last Week 183 (Ending 9/20/99) This Week 157 (Ending 9/27/99)

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