

insect answers



THE CABBAGE MAGGOT IN THE HOME GARDEN

The cabbage maggot, *Delia radicum*, is a common insect pest in Washington. It attacks a variety of plants including cabbage, broccoli, cauliflower, radishes, and rutabagas.

Damage

Cabbage maggots eat tunnels and grooves in the roots and lower stems of plants. Small roots may be eaten away. The maggots spread soft rot which addition-

ally damages root tissues. The leaves of damaged plants are light green or yellowish and stunted. If damage is severe, the plants wilt and eventually die. Heavy populations of cabbage maggot are difficult to control.

Description and Life History

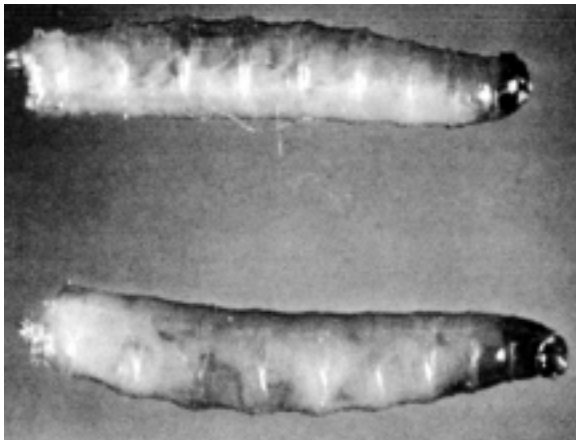
Cabbage maggots spend the winter in a resting stage called a puparium, an elongate brown structure with



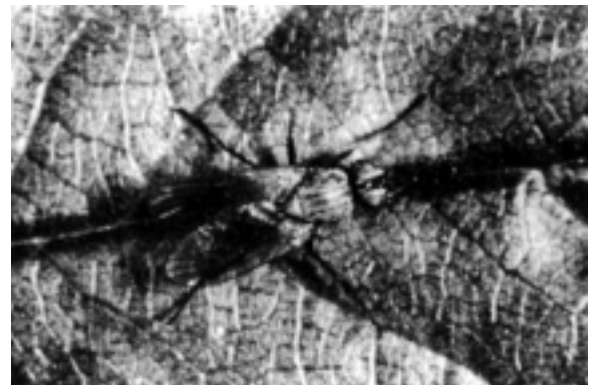
Cabbage maggots in turnip.



Cabbage maggot puparia.



Immature cabbage maggot.



Cabbage maggot adult.

rounded ends. Somewhat hard, it is buried from 1 to 5 inches in the soil.

In early spring, the adult cabbage maggot, a fly, emerges from the puparium and rises to the soil surface. The fly is gray and resembles a house fly, but is only 5 mm or $\frac{3}{16}$ inch long. It lays very small, white, oblong eggs on or just below the soil surface near the base of the host plants.

Maggots hatch from the eggs in three to seven days, then migrate through the soil and feed on underground plant parts. The maggots are cream to white in color and about 10 mm or $\frac{3}{8}$ inch long when mature. The insect causes damage only during the maggot stage, which lasts from three to five weeks.



Screen cages keep female cabbage maggot flies from laying eggs near base of plants.



Cage-grown turnips (top) escape damage suffered by uncaged turnips (bottom).

Mature maggots leave the plant and change to pupae in the soil nearby. In two to four weeks the adult fly emerges. There are usually three broods or generations a year.

Cultural Control

Precursors to floating row covers were tested by WSU in the 1970s. They proved to be excellent in preventing female flies from laying eggs at the base of plants. Place them on soil not previously infested and be sure a tight seal exists between the soil and the netting. Washington State University scientists tested other non-chemical techniques on experimental plots. Two popular treatments, use of garlic sprays or wood ashes, had little value (see photos).



Nonchemical pest control methods were tested on experimental plots.



Cabbages treated with pesticides (left), garlic spray (center), and wood ashes (right).

Chemical Control

Diazinon is the only insecticide available to home gardeners for use in controlling cabbage root maggots. Do not expect complete protection from this chemical, especially on long-term crops such as rutabagas and turnips. **Diazinon is scheduled to be phased out by December 2003.**

Diazinon Formulations

Crop	Formulation	Remarks
Cole crops including cabbage, broccoli, cauliflower, and Brussels sprouts.	Diazinon, 25% emulsifiable concentrate (also called Spectracide).	Plant transplants and drench with 4 to 8 oz of a solution containing 1 tsp. per gal. of water around the base of each plant.
Radishes	Diazinon, 5% granules	Apply in furrow at rate of 3 to 4 oz per 500 linear feet of row at planting.
Turnips	Diazinon, 5% granules	Apply 4 oz per 500 sq. ft. in seed furrow at planting time. This will not eliminate damage entirely but will reduce it.



By Arthur Antonelli, Ph.D., Washington State University Extension entomologist, and Roy M. Davidson, Jr., Ph.D., former Agricultural Research technologist, WSU Puyallup.

Use pesticides with care. Apply them only to plants, animals or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of reach of children, pets, and livestock.

College of Agriculture and Home Economics, Pullman, Washington

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