



Cabbage, Cauliflower, Broccoli, Brussel Sprouts

Cole Crops Insect Pests

No. 88

Extension Bulletin E-968, May 1976

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Cabbage maggots overwinter as pupae in the soil. The adult flies emerge in early May and are attracted to the various cole crops for egg laying. The eggs are laid mainly on the soil surface at the base of the plants. They hatch in 5 to 7 days and the (1) maggots move down in the soil and attack the main stem and roots. (2, left) This root damage kills and/or stunts the plants. (2, right: **Nearby plant that was unaffected**) There may be 3 generations per year; the 2nd and 3rd generations emerging in late June and mid-August, respectively. The later generations are usually not as damaging as the first, except for late planted crops, because the plants are already well established and are more tolerant to damage.

(3) Imported cabbage worms overwinter in Michigan as pupae. The adult butterflies emerge in early- to mid-May and begin to lay their eggs on the leaves of newly transplanted plants. The eggs hatch in about a week. (4) The young larvae (velvet-green color) begin to feed on the leaves. (5) This feeding damage causes loss in quality and yield (normal cabbage at right) and can be a source of contamination at harvest. There are 3 to 4 overlapping generations per year. Thus, adults are active and laying eggs all season.

(6) Cabbage looper adults migrate into Michigan in mid-July. The adults lay their eggs on the plants mainly in late evening or at night. The eggs hatch in about a week and the (7) larvae (light green with a white stripe along each side) begin to feed on the leaves and other plant tissues. (5) This feeding damage reduces quality and, like imported cabbage worm larvae, can be a source of contamination at harvest. The larvae grow rapidly and become increasingly difficult to control with age. The larvae get their name, "looper", from their appearance when they move. There may be 2 to 3 generations per year.

(8) Cabbage aphids (1/16-inch long, greenish-white color) begin moving into the fields in mid-June. Heavy aphid populations can cause the leaves to cup and curl (9); thus stunting the plants and often preventing heads from forming. The populations usually build up rapidly and spread throughout the fields.

(10) Thrips are very small (less than 1/16-inch long, cream-to-brownish black in color) and cause damage by rasping small holes in the leaf surface and sucking up the resulting sap. The rasping process is repeated many times. (11, **speckling**) The damage to cabbage heads appears as tiny brown spots which turn black as time passes. (12: **Enlargement of part of**

speckled area in 11) The thrips work their way in and around several layers of leaves, thus causing internal damage to the head. There may be 2 to 3 generations of thrips per year. Thrip damage is usually intensified after mid-summer when their other hosts (grasses and weeds) mature and die. Unusually dry weather generally intensifies thrip damage.

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For chemical control recommendations, homeowners should consult Extension Bulletin E-760(b), "Home Vegetable Garden Insect and Disease Control," Single Copies are Free to Michigan residents from your County Cooperative Extension Office or you may write to the Michigan State University Bulletin Office, P.O. Box 231, East Lansing, MI 48824

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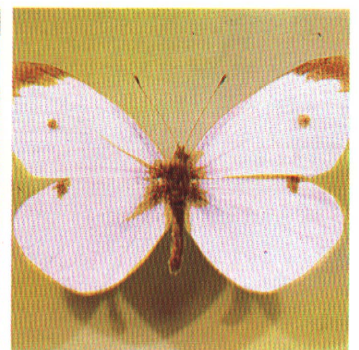
Cole Crops Insect Pests



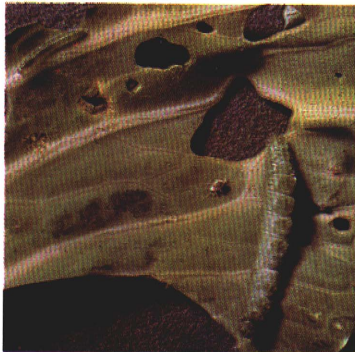
1) Cabbage maggot damage to roots



2) Cabbage maggot, damaged plant—left; healthy plant—right



3) Imported cabbage worm—adult



4) Imported cabbage worm—larvae



5) Imported cabbage worm & looper damage



6) Cabbage looper—adults



7) Cabbage looper & damage



8) Cabbage aphids (close-up)



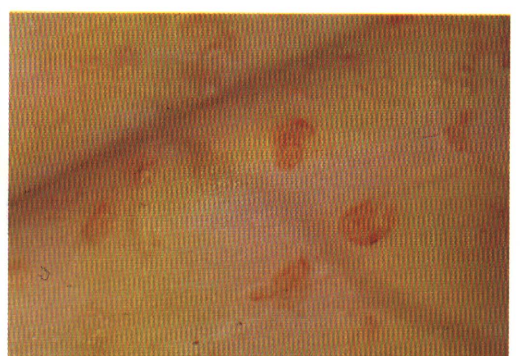
9) Cabbage aphid damage to plant



10) Onion thrip on cabbage leaf (close-up)



11) Thrip damage to cabbage (speckled brown areas)



12) Thrip damage (close-up)