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Provided to you by:

Cabbage Maggot

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Cabbage maggots (*Delia radicum*) are insects that damage cole crops by feeding on the roots and lower stem of the plant. Wounds produced by their feeding can allow an entry point for several diseases of cole crops.

Cabbage maggots are a pest of all cole crops including cabbage, broccoli, cauliflower, Brussels sprouts and can be very serious on rutabagas. Early season transplants, late season seedlings, and spring root crops are most severely damaged.

Appearance The adult cabbage maggot is an ash-gray, bristly, fly that resembles a housefly but is half as long and has black stripes on its thorax. The larvae are typical fly maggots: legless and white with a 1/3 inch long bodies that taper toward the head.

Cabbage maggot larvae on cabbage roots.

Symptoms and Effects Cabbage maggots feed both internally and on the root surface. The tunneling provides a point of entry into the plant for pathogens such as soft rot bacteria and the blackleg fungus. Maggots can be especially damaging to seedlings, injuring the growing point of the root and thereby stunting plant growth. Affected plants appear stunted and off-color. Severely damaged plants may wilt during hot weather.

Life Cycle Cabbage maggots overwinter as pupae in the upper few inches of the soil. In early May, the adults emerge lay eggs on the soil near the base of cole crops. The eggs hatch in 3-7 days and the larvae immediately begin feeding on the roots of the plant. Feeding continues for 3-4 weeks before larvae pupate in the soil. The second generation of adults emerge in late June and lay eggs. The second generation adults lay the 3rd generation eggs, that develop into the overwintering pupae by fall.

Scouting Suggestions Growers can predict peak fly emergence by monitoring degree day accumulations. Use a base temperature of 42 degrees and begin accumulating degree days when the ground thaws. The first generation of adult flies appears once $300DD_{43}$ have accumulated. The second and third generations appear once $1476DD_{43}$ and $2652DD_{43}$ have accumulated.

Fly populations can also be monitored using yellow plastic dishpans filled with soapy water. Place dishpans at 100 foot intervals along the field edge and check them every 4-6 days. Count and record the number of flies caught to determine if the population is building or dropping off.

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Control

Cultural: Prevention is the best method of cabbage maggot management. Plant in well-drained soils when soil temperatures exceed 50°F. Late plantings (mid-June) are generally damaged less than early plantings. If possible, time planting dates to avoid peak fly emergence. Transplants should be planted one week before peak fly emergence while seeds should be sown at least three weeks before, or one week after emergence. Floating row covers are also effective in protecting plants during flight periods.

Root crops planted in sand are seldom attacked by cabbage maggots and cole crops should not be planted in fields where animal manure has been freshly applied. Crop residues should be worked into the soil immediately after harvest to reduce overwintering sites.

Chemical: Insecticides at planting time are recommended in areas that have historically had problems with cabbage maggots. If insecticides are used, direct applications at the base of the plants to avoid disruption of soil-inhabiting beneficial insects. The cabbage maggot is resistant to many insecticides. Therefore select an effective material and rotate among pesticide classes to prevent the build-up of resistant populations. Refer to UWEX publication A3422 "Commercial Vegetable Production in Wisconsin" for a list of recommended products.

For pesticide recommendations: See UW-Extension Bulletin A3422 or contact your County Extension Agent.

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