

## Cabbage Maggot

Karen Delahaut, UW-Madison Fresh Market Vegetable Program

The cabbage maggot (*Delia radicum*) is a pest of cole crops including cabbage, broccoli, Brussels sprouts, cauliflower, and rutabaga. Cabbage maggots damage plants by feeding on the roots and lower stem of plants. Damage can be particularly serious on rutabaga and spring root crops, as well as on early season transplants and late season seedlings. Wounds produced by cabbage maggot feeding can allow an entry point for several diseases.



Cabbage maggot larvae on cabbage roots.

**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. Cabbage maggot larvae are typical fly maggots: legless and white with  $\frac{1}{8}$  inch long bodies that taper toward the head.

**Symptoms and Effects:** Cabbage maggots feed both within and on the surface of roots. Feeding tunnels provide points of entry into the plant for pathogens such as the soft rot bacterium (*Erwinia carotovora*) and the blackleg fungus (*Pythium* sp.). Maggots can be

especially damaging to seedlings, injuring the growing point of the root and thereby inhibiting water and nutrient uptake. 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, adults flies emerge and lay eggs on the soil near the base of cole crops. Eggs hatch in three to seven days and larvae immediately begin feeding on the roots of the plants. Feeding continues for three to four weeks before larvae pupate in the soil. A second generation of adults emerges in late June and lays third generation eggs. In northern locations where the growing season is short, this third generation may not complete development and will overwinter as pupae.

**Scouting Suggestions:** Growers can predict peak adult emergence by monitoring degree day accumulations. Use a base temperature of 43 degrees and begin accumulating degree days when the ground thaws. The first generation of adult flies appears once 300DD<sub>43</sub> have accumulated. The second and third generations adults appear once 1476DD<sub>43</sub> and 2652DD<sub>43</sub> have accumulated.

Fly populations can also be monitored using yellow plastic dishpans filled with soapy water. Place dishpans at 100-foot intervals along a field edge and check them every



four to six days. Count and record the number of flies caught to determine if the population is building or dropping off.

## **Control**

**Cultural:** Prevention is the best method of cabbage maggot management. Plant cole crops in well-drained soils and only 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 adult 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. 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:** Use of insecticides at planting is recommended in areas that have historically had problems with cabbage maggots. Refer to University of Wisconsin-Extension publication A3422 "Commercial Vegetable Production in Wisconsin" for a list of recommended products. Directly apply insecticides at the base of the plants to avoid disruption of beneficial, soil-inhabiting insects. Because cabbage maggots can develop resistance to many insecticides, you should rotate among pesticides in several chemical classes to prevent the build-up of resistant populations.

**For more information on cabbage maggot:** See UW-Extension Bulletin A3422, or contact your county Extension agent.

© 1999 by the Board of Regents of the University of Wisconsin System doing business as the division of Cooperative Extension of the University of Wisconsin Extension.

An EEO/Affirmative Action employer, University of Wisconsin Extension provides equal opportunities in employment and programming, including Title IX and ADA requirements.

References to pesticide products in this publication are for your convenience and are not an endorsement or criticism of one product over similar products. You are responsible for using pesticides according to the manufacturer's current label directions. Follow directions exactly to protect the environment and people from pesticide exposure. Failure to do so violates the law.

Thanks to Jeff Wyman and Phil Pellitteri for reviewing this document.

A complete inventory of University of Wisconsin Garden Facts is available at the University of Wisconsin-Extension Horticulture website: [whort.uwex.edu](http://whort.uwex.edu).