CARROT RUST FLY

The carrot rust fly can be a serious problem. Besides carrots, it also attacks other plants including parsnips, celery, celeriac, and parsley. The carrot rust fly maggot damages plants by eating the small fibrous roots and by tunneling in larger roots. A rust-colored material develops in the tunnels, giving the insect its name. Affected plants may become yellow, stunted, and die. Usually the plant tops continue to look healthy. Maggots often continue to feed in stored carrots. Disease organisms may enter the feeding tunnels and cause them to rot.

The adult fly is 1/5 inch (5 mm) long and has a dark, shiny body with straw-yellow legs and head and large red eyes. It lays eggs in May and June on the soil surface around the plants. The eggs hatch in a few days and the maggots, the only plant-injurious stage, feed on and in the roots. The maggots are yellowish white and reach about 1/3 inch (8 mm) in length. They feed about a month and then change into brown puparia about 1/5 inch (5 mm) long. The puparia stay in the soil near the roots until August when the adult flies emerge. The new flies lay more eggs which change to maggots. This group causes plant damage into the fall. Some flies may develop in the fall. These insects spend the winter as puparia in the soil or as maggots in the roots. Maggots from the August-September generation cause the greatest damage. Damage generally increases the longer the carrots are left in the ground.

Control

Carrot rust fly damage to carrots may be reduced but not totally eliminated by applying a registered soil insecticide as label instructs into the seed.
furrow at planting time. There are no registered chemicals which can be used for control of carrot rust fly on other plants.

**Ways to Minimize Rust Fly Damage**

Where rust flies are serious pests, place carrots and other infested plants that are badly damaged in the garbage can quickly. This will eliminate part of the source of next year's rust fly population. Early fall harvesting and storage of carrots in pits and root cellars rather than in the ground help minimize fall infestations caused by late second and early third generation maggots. Avoid early-season egg laying by planting after early adults have emerged and dispersed (for example, mid- to late June, see graph). Success of this practice depends on neighboring populations, alternate hosts, etc.

Floating row covers such as those used for cabbage root maggots and spinach leafminer can also be used. Be sure to seal them well at the soil line and do not use them on soil areas that were infested with rust fly the previous year.

Certain conditions favor rust fly infestations. In commercial plantings many of these conditions can be avoided. Such conditions include

- A previous history of rust fly infestations.
- Consecutive annual plantings of carrots.
- Soils with high organic matter content.
- Abundant carrot rust fly weed hosts in area.
- Fields surrounded by brush and woods.
- Fields adjacent to homes and other buildings.

Although avoiding such practices will help, no "magic" cures exist. By the very nature of home garden plantings and the way they are managed, most of these conditions would be impossible to avoid. Thus home gardens are normally vulnerable to rust fly build-up.

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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 the reach of children, pets, and livestock.

College of Agriculture and Home Economics

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