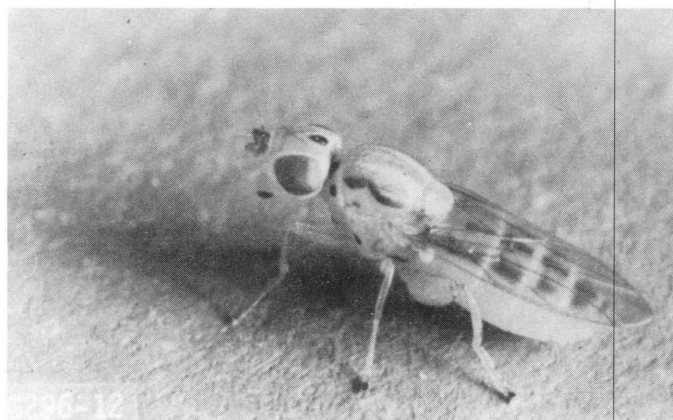
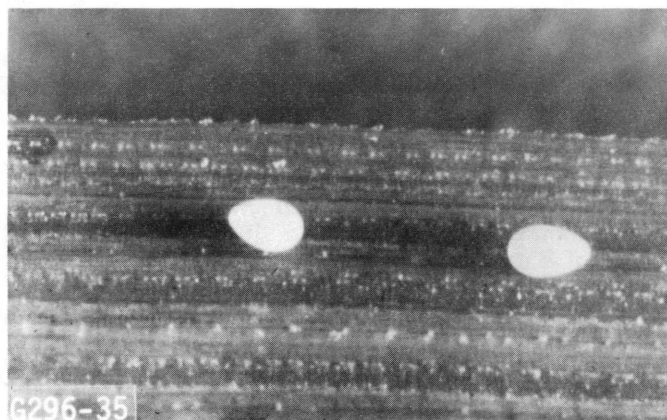


# The wheat stem maggot



*Wheat stem maggot adult*



*Wheat stem maggot eggs on a leaf*

The larva of one or two species of small flies (probably *Meromyza pratorum* and *M. saltatrix*)—commonly known as the wheat stem maggot—infests many cereal and some grass crops. It has recently caused severe damage to spring-seeded barley in the Klamath Basin.

In western Oregon, the wheat stem maggot is almost always present, but usually at very low population levels. Grasses and fall-seeded cereals attacked by this insect display injury characteristic of that caused by the Hessian fly.

Infested plants develop a darker green appearance than that of uninfested plants, and they display stunting and stiff, thickened leaves. If you cut into infested plants with a razor blade, you will see small ( $\frac{1}{4}$  inch long), pale green maggots feeding inside the lower part of the stem or in the crown area.

The injury this insect causes in late spring and summer becomes apparent shortly after heads begin to fill. At this time, you will find the maggots inside the straw, just above the last or next to the last node. Heads and upper portions of the straw turn white, while lower stems and leaves remain green.

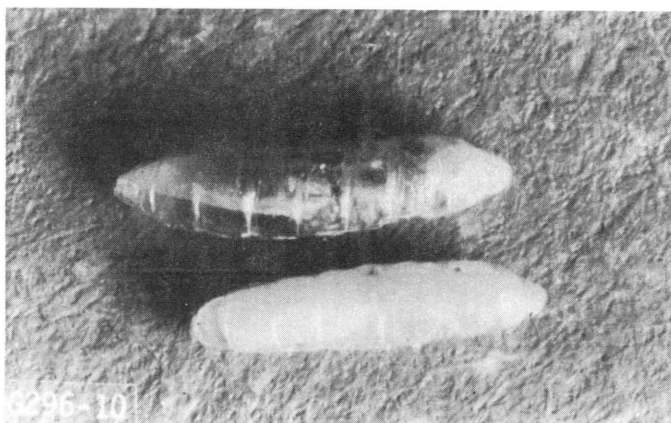
Prematurely whitened heads are very conspicuous in fields of green wheat—they often produce an exaggerated impression of the importance of this insect. Occasionally, the larvae feed on the developing heads still in the boot stage. When the head emerges, shriveled, deformed, and missing kernels provide evidence of this feeding.

Usually less than 5 percent of cereal tillers are infested by wheat stem maggots, but in 1982 more than 30 percent injury occurred in some spring-seeded barley fields in the Klamath Basin.



*Right: Wheat stem maggot damage to head while still in the "boot"*





*Wheat stem maggot larvae (or maggots)*



*Damage to wheat stems caused by the maggot*

### Host plants

The maggots of this small fly feed on many cultivated crops including wheat, barley, oats, and rye. Bluegrass, timothy, and a number of wild grasses also serve as hosts.

### Distribution

This insect is native to the United States and occurs from Mexico to Canada. It can be found in all cereal- and grass-producing regions of Oregon.

### Life history

Wheat stem maggot passes the winter in the larval or maggot stage inside a lower stem or in the crown of the cereal or grass plant in which it feeds. In the spring it pupates within these tissues and emerges shortly afterwards as a yellowish white fly about 1/5 inch long. The fly is marked with three conspicuous black stripes on the thorax and abdomen, and its eyes are bright green.

In late spring, female flies deposit eggs on the leaves or stems of host plants. Young maggots crawl down the leaf sheaths and tunnel into stems, where they feed for 3 to 4 weeks; each maggot damages 2 to 3 inches of stem tissue. Adults of the next generation emerge in early summer and deposit eggs on wild grasses and cereals.

Larvae of this summer generation become full-grown during September and emerge as adults in September and October. These adults lay the eggs of the fall generation of maggots that develop on winter wheat.

### Control measures

Although late-seeded fall cereals generally are free from aphid and Hessian fly damage, do not depend on late seeding to prevent injury from wheat stem maggot.

Because conservation tillage practices that minimize the postharvest destruction of straw *also reduce mortality of overwintering maggots* within the straw, it is possible that wheat stem maggot damage may become more prevalent as minimum tillage is practiced on increasing acreage.

### Chemical control

Both disulfoton (Di-syston) and phorate (Thimet) are labeled for use on wheat and barley to control other pests. It is likely that "at planting time" application of disulfoton or phorate granules will also reduce seedling damage caused by wheat stem maggot.

Where aphids and/or Hessian fly are also a problem, this use of systemic granular insecticides at planting time is rapidly being adopted as a standard practice. *Carefully follow label restrictions* concerning crop irrigation and time of application.

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**This publication** was prepared by Glenn C. Fisher, Extension entomologist, and Richard Weinzierl, Extension pest management specialist, Oregon State University. The mention of trade-name products implies no endorsement of these products by the authors or by the Oregon State University Extension Service.

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