

Wheat Stem Maggot



Wheat stem maggot, *Meromyza americana*, belongs to a family of flies known as frit flies or grass flies (Chloropidae). It is a native insect that occurs in grasses across North America. Larvae feed inside the stem, killing the upper part of the stem and the head.

Host Crops

Wheat, rye, barley, millet, bluegrass, timothy, and a range of other native and introduced grass species including quackgrass, green foxtail and yellow foxtail.

Biology

Identification:

Adults:

- The adult fly is a small (about 5 mm or 1/4 in. long), yellowish-white fly, with bright-green eyes.
- They have 3 black stripes across the thorax and abdomen.

Larvae:

- Mature larvae are slender, about 6-7 mm (1/4 in.) in length, and pale-green or cream coloured. They are legless, lack a head capsule, but have two black hooklike mandibles. They are usually found inside the stem.

Lifecycle:

In cereal plants or grasses, wheat stem maggot larvae overwinter in the lower parts of the stems. The larvae pupate in the spring and the adults emerge in June. After mating, the female flies lay small, white eggs, one per stem, near the sheath of the flag leaf, over a period of 2-3 weeks. These eggs hatch into green-coloured maggots in about 5 days.

The larvae burrow into and consume the interior of the stem, killing the upper part of the stem and the head. They complete their larval development in 18-21 days. There are normally 2 generations per summer.



May	June	July	August	September
Overwintering larvae pupate	Adult flies emerge, mate, lay eggs	Maggots feed, pupate	New adults emerge, lay eggs, maggots feed	Larvae begin to overwinter

Scouting Techniques

The damage is fairly distinctive - white heads without kernels on a plant that is still green. The infested head and upper stem can be pulled easily from the plant, and the chewed end of the stem can usually be seen. The maggots can be found by carefully dissecting the upper regions of the stem.

The white heads contrast markedly with the normal green heads, thus it is easy to overestimate infestation levels. Typically, only 1-5% of the heads are affected and they are usually scattered randomly throughout the field. However, damage by this insect can be higher in some years.

Note that root rot infections may produce white heads. However, with root rot, the entire plant turns white. High temperatures and drought stress may also cause prematurely-whitened heads and the death of some spikelets.



Economic Thresholds

No thresholds have been developed for this insect.

Control Tips

Crop rotation and control of grassy weeds and volunteer small grains can help to prevent the buildup of populations.

In some areas, natural populations of parasitoids can be important in maintaining wheat stem maggot at relatively low levels.

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John Gavloski, entomologist, Manitoba Agriculture