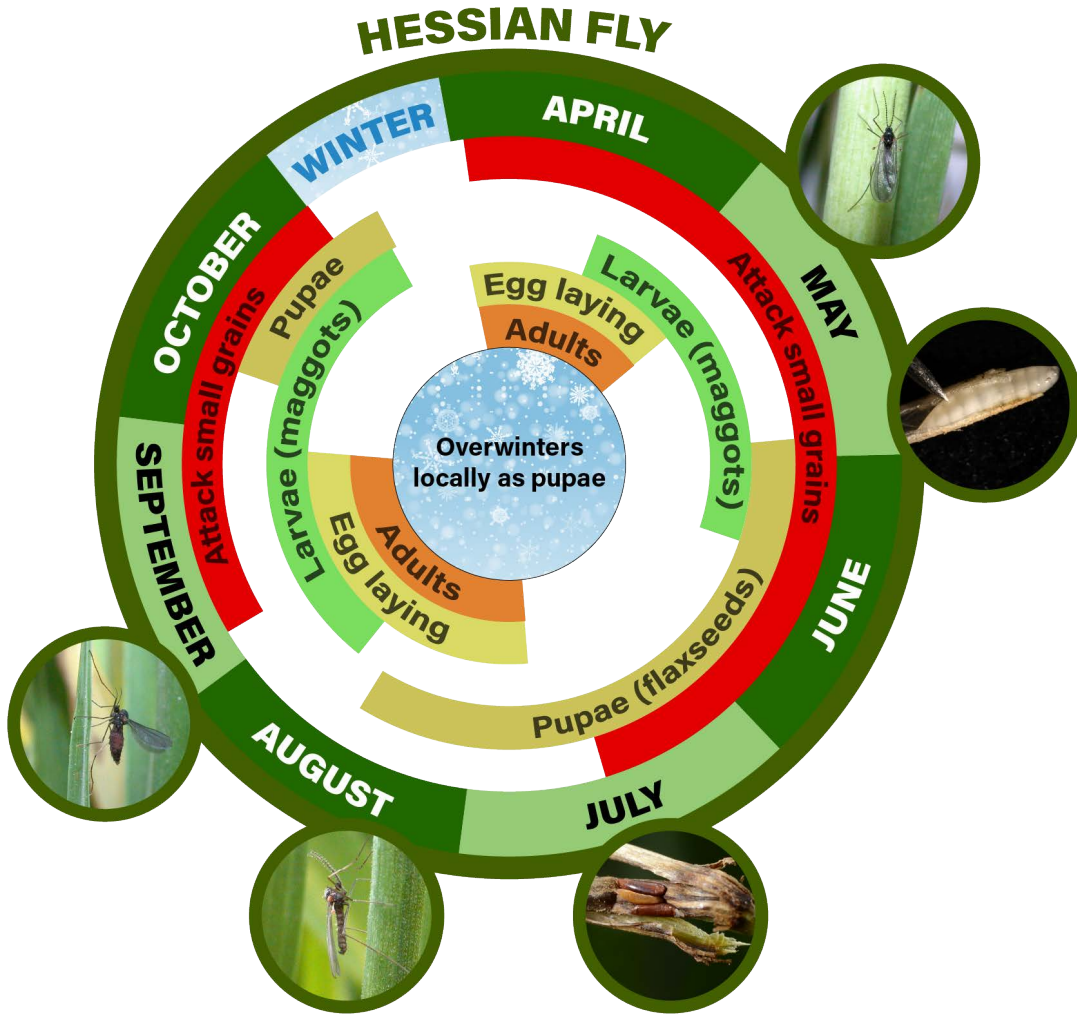


Hessian Fly

Mayetiola destructor Say



Appearance and Life History

Hessian fly may pose a serious threat to wheat, barley, and rye, with wheat being the preferred host.

Hessian fly passes the winter as a full-grown maggot within a brown protective case known as a puparia or flaxseed. The flaxseed is protected behind the leaf sheath at the bottom of the stem of newly seeded wheat or volunteer wheat plants. The maggot remains inactive during the winter.



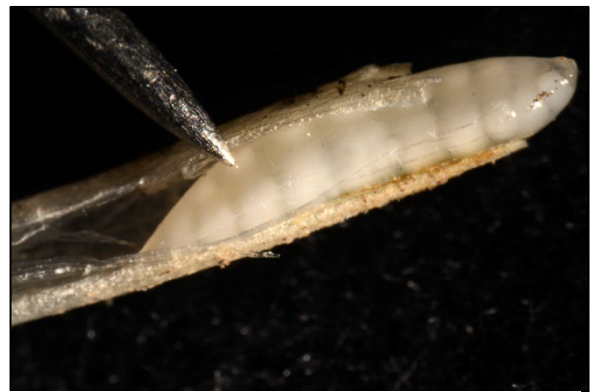
Hessian fly eggs

Photo by J. Obermeyer



Adult

Photo by J. Obermeyer



Larva (maggot)

Photo by J. Obermeyer



Flaxseed stage containing pupa

Photo by J. Obermeyer

In the spring, shortly after the wheat breaks dormancy and begins to grow again, the maggot changes within the flaxseed into a pupa, emerging in a week or two as a small [less than 1/8 inch (3 mm) in length] black fly.

Damage

Plant injury is caused by the immature, maggot stage of the Hessian fly. The maggot can damage seedlings in the fall and overwintered plants in the spring by rasping the lower stem tissue and sucking the sap which oozes from the wound. The maggots never enter the stem. However, infested stems usually break once the heads begin to fill, leading to reductions in yield. Maggot feeding on small seedlings in the autumn causes severe injury to plants. Infested wheat is stunted, dark green, and its leaves are broader than normal. Such injured plants will never grow past the four-leaf stage and generally die during the winter. The adult Hessian fly does not cause any damage to small grains.



Sampling Method

- Survey wheat at two stages for evidence of Hessian fly.
 - First, check wheat in the seedling stage in the **autumn**, 18 to 21 days after the plants emerge.
 - In each of 5 areas of the field, examine 20 stems.
 - Record the number of stems that exhibit the symptoms of Hessian fly maggot feeding damage.
 - Determine the percentage of infested stems from the sample of 100 stems.
 - Follow the same sampling pattern in the **spring** when the wheat heads just begin to fill.
 - During your spring inspection(s), determine the number of broken stems out of the 100 stems sampled. Use this number to calculate the percentage of infested stems.

Management Guidelines

Small Grains Insect Control Recommendations: [E-series 220-W](#) (PDF)

- No economic thresholds have been established for Hessian fly. Once the infestation is apparent, the damage has been done and no treatment will reduce the losses to the crop.
- Until definite threshold guidelines are established, any level of Hessian fly infestation in this year's wheat crop demands that the next crop be planted to the most up-to-date Hessian fly-resistant varieties after the "fly-free" date for that particular locale
- The fly-free date marks the time when Hessian fly is (generally) no longer active in the fall. However, the continuation of warm weather into the late summer and early autumn may extend Hessian fly activity beyond the average fly-free date. Thus, it is essential to plant resistant wheat varieties (common practice), even after the fly-free date. Planting wheat after the fly-free date also reduces the impact of many wheat diseases.