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Hessian Fly Control Considerations in Winter Wheat Tom A. Royer, Extension Entomologist



Oklahoma growers experienced some Hessian fly infestations last year, so it has become a topic of concern as this planting season approaches. It is critical to make those decisions, because there are very few control options available to growers.

There are 2 main generations that occur, a fall infestation and a spring infestation. Hessian fly injury is caused by larval feeding on stem tissue at the crown of young plants or just above the nodes of jointed wheat. The larva is a shiny,

white headless and legless maggot that measures up to 3/16 of an inch. When mature, a larva forms a 1/8 inch long puparium that is commonly referred to as a "flaxseed". A flaxseed is dark brown and looks like a grain of rice.

During a fall infestation, young infested plants become dark-green to bluish green in color and are stunted with thickened leaves. Often, secondary tillers fail to develop or simply die. To confirm an infestation, the plant and roots should be removed from the soil and inspected for maggots or flaxseeds by gently pulling the leaf sheath away from the stem and examining the crown area. Pay particular attention to any secondary tillers for flaxseed.

In a spring infestation, the stem is often injured, and will lodge at the point of feeding. A heavily infested field looks like it has suffered hail damage. In such fields, the lodged plants will nearly always contain "flaxseeds" that are inserted at the first joint of the stem, just under the leaf sheath. You can estimate damage by counting fallen tillers per foot of row in several locations, and dividing that by the number of heads in a foot of row. There is no effective insecticide control for spring infestations.

Control: As stated earlier, Hessian fly infestations are rare in Oklahoma, probably due to the drier environment that exists in most of the wheat belt. Even so, it can be a problem in



some years. There are just a few control options that are effective.

- **The Fly Free Planting Date:** If fields are planted later, say in October, the risk of a fall infestation will be reduced. The so-called “fly-free planting date” is not very effective, with the exception of the northern tier of counties in Oklahoma, including the panhandle. Why, because we have such varying warm periods during the wheat growing season, so Hessian fly adults can emerge at any time during the winter in most of the state.
- **Burying stubble.** Infested stubble should be buried at least two to four inches below the surface. Volunteer wheat should be destroyed as soon as possible if summer rains stimulate germination in the field. This is not an option for those growers practicing conservation tillage.
- **Resistant varieties** are available for spring wheat, but there is much less information on biotype resistance that is incorporated into hard red winter wheat. I sampled several infested fields in north central Oklahoma which showed that biotypes A, B, C, and D comprised 90+% of the biotypes collected. Thus, any variety that has resistance to those biotypes will be of value in areas where Hessian fly has been a more consistent problem.
- **Seed Treatments:** Seed can be treated with Gaucho or Cruiser insecticide to control fall infestations. This should be a strong consideration for growers that use no-till or conservation tillage, and are growing continuous wheat. Dr. Gerald Wilde, a research entomologist at Kansas State, has conducted some studies that evaluated control of Hessian fly with seed treatments. His work showed that Gaucho and Cruiser both reduced Hessian fly compared to untreated seed by about 90%. These seed treatments do not reduce spring infestations; however they also provide protection from cereal aphids such as the greenbug and bird cherry-oat aphid.

Growers that have experienced more consistent infestations of Hessian fly should consider using a seed treatment, especially if they are growing continuous wheat in a no-till or conservation till system and are planting in September.

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