

TIMELY INFORMATION

Agriculture & Natural Resources

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Scouting for Hessian Fly in Wheat in Alabama and Georgia

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This guide is a supplement to the information on Hessian fly listed on the last page. It describes how to look for a Hessian fly infestation in wheat in February. Scouting susceptible varieties of wheat in February is worthwhile for two reasons:

- 1) To determine if a field is infested with enough Hessian flies to justify trying a rescue treatment with a foliar insecticide; and
- 2) To decide whether or not to apply additional inputs on a badly infested field.

Hessian fly maggots (larvae) suck sap and stunt tillers presumably by injecting a toxin into the plant. Feeding by a single larva for several days is sufficient to completely stunt and kill a vegetative tiller. Infested jointed stems are shortened and weakened at the joint where feeding occurs. Grain filling of infested stems is reduced and damaged stems often lodge before harvest.

The following pictures show typical stunting and dead tillers due to Hessian fly:



Stunted tillers



Wheat plants with dead tillers

In February (early March in northern AL and GA), you will find most of the Hessian fly larvae and pupae at the crown of the plant, hiding behind the leaf sheaths. As the plant starts jointing, flies lay eggs on the uppermost leaf so you will find the larvae and flax seed further up the plant. After hatching larvae make their way downward along the stem, inside the leaf sheath, until they can't go any further. This is why they accumulate just above a stem joint. More than one joint on the same stem can be infested.



“Green gut” (older Hessian fly larva)



“Flax seeds” (Hessian fly puparia)

The older larvae (above left) are informally known as “green guts” because the green color in their digestive tract shows through the white body color. Newly hatched larvae are reddish. After hatching, they move along a leaf groove to the leaf sheath and then move between the leaf sheath and stem where they begin to feed on the stem above the leaf base. Maggots become white after molting and appear greenish white when full grown. Once larvae move to the stem base, they are protected from weather extremes and foliar applied insecticides.

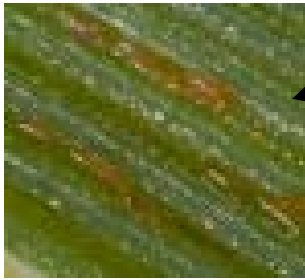
The “Flax Seed” stage (above right) is where the fly turns from a maggot to a pupae before emerging as an adult fly. If you squish a flax seed and the contents are white or green, it is a young flax seed. If it is reddish colored, this is an older flax seed from which the adult will soon emerge.

Scouting for Hessian fly: Look at several spots within the field. If you see any plants with stunted or dead tillers, carefully dig them up and peel back the leaves to see if you see any Hessian fly larvae or pupae. Check the surrounding apparently healthy plants nearby. If you find 5-40% of all wheat tillers infested with Hessian fly, you may be able to rescue the crop using a properly timed foliar insecticide. Treating fields with less than 5% infestation would not be economical. If 40%-50% or more of the tillers are infested, it may be prudent to abandon the field, and stop adding inputs such as nitrogen.

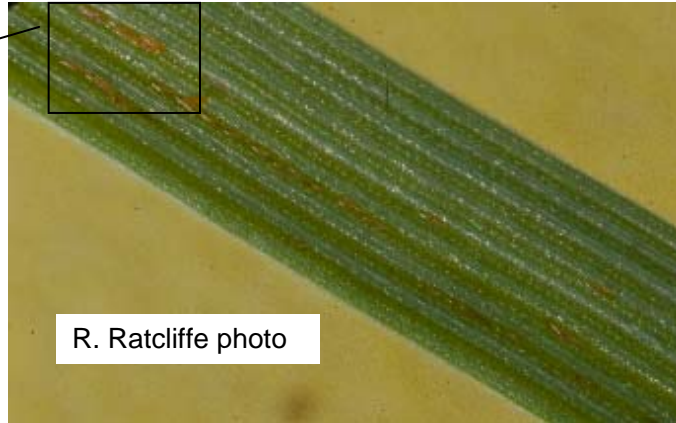
Deciding when to spray: If you want to try to control the fly with a foliar insecticide, check the field at least once a week. Look in different parts of the field until you have seen at least 10 Hessian fly larvae or flax seeds. Note how many green guts, younger flax seeds, and older flax seeds that you find. Once most of the flax seeds are “red” start looking for eggs on the newest leaves on the wheat plant. Eggs are tiny and orange colored. They are laid between the veins on the upper surface of the leaf. Make the insecticide application when the adults start to emerge, that is, as soon as you find the first eggs on the plants, or when most of the flaxseeds are red inside. Use lambda cyhalothrin at 0.03 lb. a.i./A (Karate Z, Mystic Z, or similar products @ 1.92 fl. oz./acre (1 gal/67A) or Silencer, Lambda T or similar products @ 3.84 fl. oz./acre (1 gal/33 A). Proper timing of this application is very difficult without sampling. Also the rescue treatment often is not completely effective even when applied at the proper time.



You may find more than one Hessian fly larvae or flax seed behind a leaf sheath. There were more than 7 larvae and flax seeds infesting this tiller.



Eggs are orange-red, 1/32 inch long and hatch in three to five days. They glisten on a sunny day.



Adult Hessian flies are small black flies about the size of a mosquito. Adults live about two days and females lay about 200 eggs in the grooves of the upper side of the wheat leaves. They are difficult to find in the field.

Further Information about Hessian fly in the Southeast:

Biology and Management of Hessian fly in Wheat, Alabama Cooperative Extension System

Circular ANR-1069, <http://www.aces.edu/pubs/docs/A/ANR-1069/>

UGA Wheat Production Guide, Insect Control,

http://www.caes.uga.edu/commodities/fieldcrops/gagrains/documents/Buntin_InsectPestMgmt.pdf

The Hessian Fly: A Pest of Wheat in North Carolina, 2004. NC State Small Grains Insect Note,

<http://www.ces.ncsu.edu/plymouth/pubs/ent/HFLYupdate03.html>

Small Grains IPM Guide, Alabama Cooperative Extension System,

<http://www.aces.edu/pubs/docs/A/ANR-0500-A/VOL1-2009/smallgrains.pdf>