Pest e-alerts

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Vol. 15, No. 38 http://entoplp.okstate.edu/pddl/pdidl **11/30/2016**

Plan to Manage Hessian Fly

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Hessian fly has showed up in SW Oklahoma winter wheat this fall, so we need to review how to identify field infestations this year, and strategies that can assist in managing Hessian fly NEXT YEAR. Even though there is not a 100% solution to manage this pest, producers have several options to minimize the problems caused by Hessian fly.

Hessian fly infestations are often overlooked in wheat until damage becomes visible. The fly is tiny (1/8 inches) and resembles a gnat. The damaging stage is the larva, which starts out as an orange, headless and legless maggot that quickly crawls to a hidden feeding site in the plant. Once it attaches to the plant, it turns into a shiny, green-white maggot that doesn't move until it emerges as a fly. The mature larva forms a dark brown, 1/8-inch-long puparium, commonly referred to as a "flaxseed". The flaxseed serves as the over-wintering and over-summering stage.

We normally see two main generations in Oklahoma, (fall and spring) plus several other "pulses" or minor infestations that can occur anytime during the winter when temperatures exceed 55^{O} F coupled with a rainfall event of ½ inches or more. Larvae injure the wheat as they feed, in the fall by feeding on stem tissue at the crown of young plants or, in spring, feeding just above the nodes of jointed wheat.

In the fall, young infested plants become dark-green to bluish-green in color and are stunted with thickened leaves. The infested tiller eventually dies. Some varieties may compensate by producing more secondary tillers. Others have some level of genetic resistance. The Wheat Improvement Team screens most of the newly released varieties for Hessian fly resistance, so we now know which varieties are resistant or partially resistant.

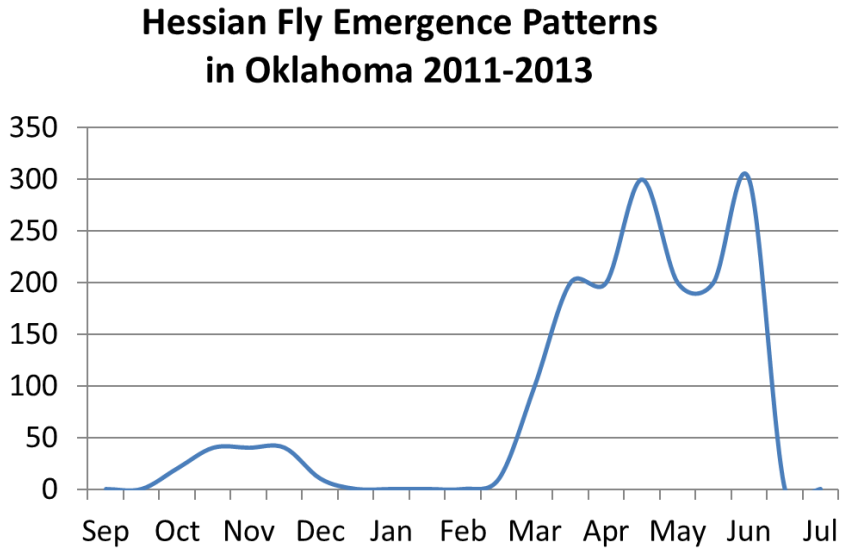
How do you know if you have an infestation? To confirm a fall infestation, remove the plant and roots from the soil and inspect the crowns for maggots or flaxseeds by gently pulling the leaf sheath away from the stem. In spring, inspect the first or second joint of the stem inside the leaf

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. If you suspect that you have an infestation, bring the suspect samples
in to your County Extension Office for confirmation.

The next question is obvious: what can a producer do to prevent Hessian fly outbreaks? Hessian fly can be managed using several methods which work best when combined as a long-term management strategy.

Grow resistant varieties: Resistant varieties can be a very effective tool for managing Hessian fly. Entomologists in the Wheat Improvement Team have been evaluating varieties for resistance and tolerance to Hessian fly for the past more than 8 years. Some resistant or partially resistant varieties include Duster, Gallagher, Everest, CJ, Centerfield, 2174 (resistant); Chisholm, Hatcher, 2174, Ruby Lee (partially resistant). ***Growers that grow continuous wheat under no/low till wheat and plan to plant in late September/early October <u>or</u> growers planting clean-till in fields located near no-till fields should <u>strongly</u> consider a resistant variety.***

Plant late. Fields planted later, in mid to late October, are at less risk of a fall infestation. A specific "fly-free planting date" does not exist for Oklahoma growers, with the exception of the northern tier of counties in Oklahoma, including the panhandle. A graduate student, Nathan Bradford, recently completed a survey of Hessian fly emergence using pheromone traps, and found that Oklahoma experiences extended emergence well past any "fly free date" for planting. Yet, a late planting will escape early emerging fly infestations, and will improve the effectiveness of an insecticide seed treatment.



Control volunteer wheat: Volunteer wheat serves as an early source for Hessian fly. It is important to destroy any volunteer wheat by August 15 to reduce that reservoir.

Rotate wheat with a non-host crop: Crop rotation can be effective at reducing Hessian fly infestations, but remember that Hessian fly adults can fly up to 1 mile from their over-summering/over-wintering site. Fields located next to continuous, no-till wheat fields are at greater risk from spillover infestations.

Bury wheat residue and control volunteer wheat: Hessian fly infestations are reduced when residue is buried 2-4 inches beneath the soil surface because the flaxseed is buried deep enough to prevent the fly from reaching the surface. This option is not available if the producer is committed to no-till. No-till producers should use resistant varieties, multi-crop rotations, delayed planting and volunteer wheat control; AND seriously consider using an insecticide seed treatment.

Use an insecticide seed treatment: As a last resort, seed can be treated with clothianidin, imidacloprid or thiamethoxam insecticide. They will reduce fall infestations if the rate is adequate and the wheat is not planted too early. Wheat that is planted early September may suffer higher infestations even with treated seed because the insecticide becomes diluted within the plant as the wheat matures. A late flush of Hessian flies in the fall will survive on treated wheat if planted much earlier. REMEMBER, these seed treatments do not reduce spring infestations and will not eliminate an infestation, only suppress it.

For more information, consult fact sheet EPP-7086, *Hessian Fly Management in Oklahoma Winter Wheat*. http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-6189/EPP-7086web2015.pdf

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources.