

UK Researchers Study Ways To Biologically Control Wheat Pests

LEXINGTON, KY.

If not controlled, certain insects can decimate wheat yields, ultimately causing significant economic losses for producers.

University of Kentucky doctoral student Katelyn Kowles and her advisor James Harwood, an assistant professor in the UK Department of Entomology, are in the first year of a study to ex-

years can result in economic losses in the millions of dollars.

"If we can knock out low populations of these insects early in the season using natural predators for biological control, we can minimize yield losses," he said. "Hopefully our research will generate sufficient data to aid growers and commodity groups to make sound, sustainable



amine the structure of food webs in winter wheat, focusing on predators that feed on a variety of pest species. The ultimate goal of the UK College of Agriculture researchers is to determine effective ways to use predatory insects and spiders to suppress pest populations in conservation biological control.

"As we try to build sustainable crop systems, understanding predator/prey relationships is crucial," Harwood said.

Their study focuses on major pests of Kentucky wheat such as slugs and a variety of aphid species, including English grain aphids and bird cherry-oat aphids. These aphids are carriers of the barley yellow dwarf virus, the most widespread and destructive virus of wheat. On average, the virus causes an estimated 17 percent loss of the world's crop each year. In Kentucky, the severity of damage from the virus varies annually with some years having trace amounts and others being epidemics. Epidemic

management decisions."

Harwood's and Kowles' study determines predator/prey relationships through a process called gut content analysis, in which researchers are able to obtain and analyze DNA of prey from a predator's digestive tract. With this data, not only can they identify predators and prey, but they can determine predators' foraging preferences and how an abundance or limited number of prey alters the structure of the food web.

Harwood's lab is one of only a handful in the world that's using this cutting-edge technology. In addition to the wheat study, they are also studying the food webs of several other different crops and other predatory invertebrates', such as spiders, roles in the food web.

The researchers presented their study to wheat growers and industry professionals during the 2010 UK Winter Wheat Meeting. Δ

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