The Changing World Of Corn Pest Management

JACKSON, TENN.

In the past 10 years, the way farmers grow corn has revolutionized thanks to Bt technology. But according to University of Tennessee IPM specialist Dr. Scott Stewart, another wave of change in corn pest control is on the horizon.

"Now we're in a new generation of Bt corn, we've got second generation Bt corn that produce multiple Bt toxins," says Stewart. "We're looking at the option of reducing the refuge size and looking at the 'Refuge in a Bag' concept."

Currently farmers are required to plant a refuge of non-Bt corn to prevent insects from developing resistance to the Bt traits. "Refuge in a Bag" is a concept being considered by several seed companies in which they would blend Bt corn seeds with a set percentage, for example 5-10 percent, of non-Bt seed in one bag.

"The reason we're doing this study is using a 'Refuge in a Bag' concept would pretty much eliminate the possibility of spraying fields specifically for corn borers or corn earworm," Stewart says. "So how's that going to affect yield?"

To find out, Stewart and Research Coordinator Sandy Steckel planted non-Bt seeds into a Bt corn research plot at the West Tennessee AgResearch and Education Center. They infested them with corn borer larvae and at the end of the year they'll take yield on the infested plants as well as their neighbors.

"Southwestern Corn Borer tunnel into the stalks and do a lot of damage to corn, not only reducing yield but also with potential lodging problems later in the year prior to harvest," says Steckel. "We want to find out if the neighbor plants can compensate in yield for a damaged neighbor."

"Just because you have a 5 percent seed blend and all 5 percent of those plants get infested, is that going to translate into a 5 percent yield loss? We don't know, and we want to find out."

While the study is far from complete, Stewart hypothesizes a favorable outcome for this new insect management concept.

"I think we're going to find there is some compensation by neighboring plants," Stewart says. "I think we'll also find that the insects that we're targeting are going to have a harder time finding those plants in the Bt corn field. They're essentially hidden in a sea of toxic plants."

Researchers will present more detailed information about this study and other UT research in corn pest management at the Milan No-Till Field Day on July 22, 2010. For more information, visit the website http://milan.tennessee.edu. Δ