Cotton Pests

Research Shows Some Varieties Show Resistance To Plant Bugs

BETTY VALLE GEGG-NAEGER
MidAmerica Farmer Grower

KEISER, ARK.

Plant bugs in cotton was a topic highlighted recently by Dr. Glenn Studebaker, extension entomologist with the University of Arkansas Cooperative Extension Service.

"Tarnished plant bug has become one of the major pests in cotton since we've eradicated the boll weevil," he said. "Bt cotton has taken care of our caterpillar pests; and plant bugs, which were minor pests, have now risen to the most expensive pests to control each year. They were fairly bad in 2009, particularly in the southern part of the state, and they've really blown up as well in the Keiser area by mid-summer."

Dr. Glenn Studebaker, Extension Entomologist with the University of Arkansas Cooperative Extension Service, discusses plant bugs in cotton and their treatment. Photo by John LaRose, Jr.

Studebaker outlined some of the research that's underway to manage this pest. He has been working at the station with the cotton breeder, Dr. Fred Bourland, to evaluate some of the new cotton lines to see if there's any resistance or tolerance to plant bugs.

"What we found is that some varieties seem to be a little bit more attractive to plant bugs than others," he reported. "We have not seen any that look like they're truly resistant, but the bugs don't like to go into them as much."

Bourland has been working with very small plots, a couple of rows in the field; Studebaker's part of the research has been to take those that seem to be a little more resistant or not as attractive to plant bugs, and test them in larger plots to determine if that carries over.

"With some of them it looks like they are more resistant," Studebaker said. "They're not completely resistant, we still have to treat them for plant bugs, but not as often as some of the other varieties. So these lines could be tools that growers could use in the future."

He also discussed insecticides and how well they control plant bugs.

"We have begun to see insecticide resistance beginning to build in the tarnished plant bug, particularly to our traditional insecticides like Acephate, one of the main insecticides that have been used a lot because they have been cheap," he said. "These have been very effective in the past and we have been monitoring resistance towards the end of the season with these. We collect plant bugs and test them and we have not seen what we would call full-blown resistance; but we've seen it has taken higher rates of this insecticide to kill these things off. That rate just keeps going up and up, and we're at the brink of seeing failures in the field I'm afraid."

Researchers used to use a quarter to a third of a pound of acephate to kill plant bugs easily. Now it takes up to a half or three-quarters of a pound of acephate and even that does not provide as good control as the quarter-pound did 10 years ago.

"One of our best products to knock out plant bugs has been Bidrin, which is in the same class as acephate; so we're afraid that once we get full blown resistance to acephate we'll find ourselves in the same predicament we were with the tobacco bud worm 10-15 years ago before Bt cotton," Studebaker reasoned.

"There's a lot of different things out there that are still working. One of the things that we urge growers to do now is not to rely on one particular chemistry over and over again. If they've used acephate once or twice and they need to spray again, we urge them to rotate to a different chemistry, such as the neonicotinoid insecticides, Centric, Trimax, or something like Carbine, all of which are different chemistries. The drawback to some of those is they don't knock down as fast and are a little slower to work. They're still effective, but you don't see immediate results as far as control."

Some of the best treatments so far have been tank mixes. However, pyrethroid insecticides usually don't do very well alone against plant bugs, but when they are mixed with one of the other chemistries, such as Bidrin or acephate or the neonicotinoid insecticides there is an increase in control.

"Our best treatments were some of the tank mixes last year," he continued. "One of the drawbacks to that is in this area we've actually seen a big increase in cotton aphids, which probably flared up because of our plant bug applications."

However, aphid populations are crashing in a few places, as a fungus is killing them off.

"We think that aphids may be under control, so we're encouraging people not to worry as much about the aphids and still focus on the plant bugs, as far as control goes," Studebaker added. Some other researchers are doing similar work with plant bugs and the final recommendations will include all the findings.

Another topic discussed by Studebaker was devastation in cotton and soybeans from corn earworm. A lot of soybean fields down south have to be sprayed for corn earworms.

"Farmers need to scout late planted soybeans for earworm and stinkbugs," he said. He warned, however, about adding a pyrethroid when spraying fungicides on soybeans when no worms are present. "That can actually create a problem. Soybeans have a lot of insects in them that really aren't causing a lot of damage. There's a lot of predatory insects in soybeans that help keep things under control and when we throw something in there like a pyrethroid with a fungicide when we don't need it we take all those beneficial insects out."

He urged farmers to use the basic IPM practices: Scout the field and only spray if there is a threshold level out there. Δ

BETTY VALLE GEGG-NAEGER: Senior Staff Writer, MidAmerica Farmer Grower