Fungicide Resistance In Frogeye Leaf Spot Confirmed

BLUE SPRINGS, MO.

Fungicide applications to soybean have significantly increased over the past five years due to claims of both a reduction in foliar disease and an increase in "plant health." However, overuse of these fungicides may erode their benefits, warns a University of Missouri Extension agronomy specialist.

Concerns about resistance have centered on fungicides called strobilurons. "Since the development of the 'strobies,' plant pathologists have noted the potential for resistance to develop quite easily with repeated use of these chemistries," said Julie Abendroth.

Because the strobilurons are active only at one specific site in disease pathogens, they possess a high "resistance risk," she said.

Strobies include products such as Headline and Quadris, as well as combination fungicide products such as Headline AMP, Quilt Xcel, Quadris Xtra and Stratego.

In 2007, Iowa State University specialists identified 23 different plant pathogens resistant to the strobilurons. In October 2010, Carl Bradley from the University of Illinois confirmed the first case of strobiluron resistance in frogeye leaf spot (Cercospora sojina) from a soybean field in Tennessee. In this particular field, strobiluron fungicides were applied twice during the season, but the field continued to have severe frogeye leaf spot. Once analyzed, the samples were shown to require a fungicide concentration 200 to 7,000 times higher than nonresistant frogeye leaf spot samples.

Strobies can reduce the severity of numerous foliar diseases in soybean; however, in on-farm trials in west-central Missouri, a yield response to fungicide application has most often occurred when frogeye leaf spot is moderate to severe, Abendroth said.

"Other foliar diseases do not appear to be as yield-limiting as frogeye leaf spot. It is therefore important that when needed, strobie fungicides remain able to provide control of this disease," she said.

To prevent resistance to the strobilurons, it is important to make fungicide applications only when needed. If a fungicide application is determined to be necessary, select either a fungicide with a triazole chemistry or a combination fungicide. Triazole fungicides such as Domark, Tilt and Folicur possess a different site and mode of action than the strobie fungicides. Also, the triazoles have a lower overall "resistance risk." Δ

(The trade names within this article are given with the understanding that no discrimination is intended and no endorsement by the University of Missouri is implied.)