

Soybean Pathogen Found To Be Resistant To Fungicides



DR. MELVIN A. NEWMAN
JACKSON, TENN.



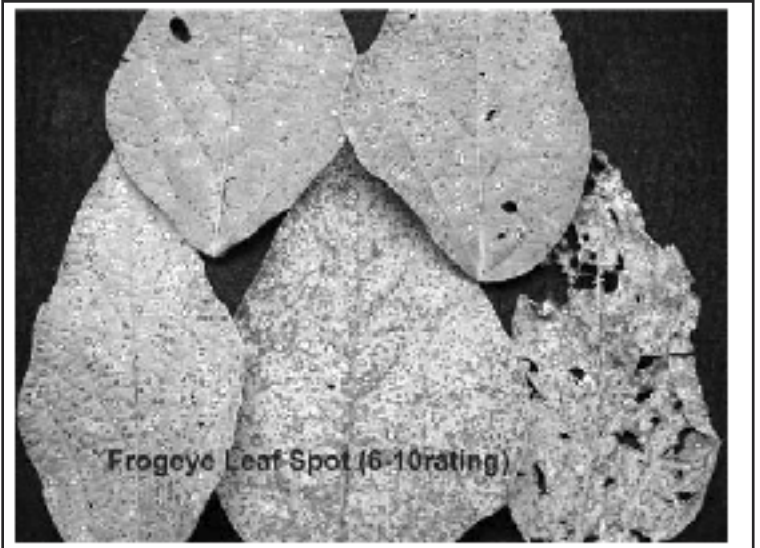
DR. CARL A. BRADLEY
URBANA, ILL.

Frogeye Leaf Spot (FLS) caused by the fungus *Cercospora sojina* has shown resistance to strobilurin fungicides in a commercial field in Lauderdale County, Tennessee this year. Strobilurin fungicides belong to a group of fungicides known as the quinone outside inhibitors (QoI), which is the most widely-used group of foliar fungicides applied to field crops. In petri dish tests conducted by Plant Pathologists at the University of Illinois, spores from isolates of *C. sojina* were found to germinate in the presence of high concentrations of azoxystrobin, pyraclostrobin, and trifloxystrobin, which are active ingredients found in fungicide products known as Headline (BASF Corporation), Quadris (Syngenta Crop Protection), and Stratego (Bayer CropScience). Many times these one-active ingredient products are mixed with a different chemistry class known as the demethylation inhibitors, sometimes referred to as triazoles. In general, triazoles have not been as effective as the strobilurins in controlling most of the soybean foliar diseases; however some are better than others.

The Lauderdale County producer was disappointed in the control of FLS this season after two applications of a strobilurin fungicide and began to suspect fungicide resistance. FLS leaf samples obtained from this field were sent to Dr. Carl Bradley for resistance testing and were found to be resistant to strobilurin fungicides. Currently, this is the only known report of strobilurin-resistant *C. sojina* in the state or soybean growing area of the US. Research is ongoing in Dr. Bradley's lab at the University of Illinois, in which *C. sojina* isolates from Illinois and other states are being evaluated for fungicide resistance. Strobilurin fungicides have been deemed high risk for pathogens developing resistance to them. This high risk status has

been determined by the Fungicide Resistance Action Committee (FRAC), an international committee that evaluates fungicide likelihood of developing resistance.

FLS has been the number one soybean foliar disease in Tennessee, causing an average annual yield loss of 7.8 percent state wide for the last five years. Lack of crop rotation and planting susceptible varieties have been responsible for much of the increase in yield loss. An increase in the number of reported races of *C. sojina* may also play a role in the heavy yield loss. Dr. Newman of the University of Tennessee Institute of Agriculture continues a soybean variety testing program for disease susceptibility and resistance to FLS and other diseases at the Research and Education Center at Milan, TN.



This testing is supported by The Tennessee Soybean Promotion Board. Results for several years can be found at

www.utcrops.com. Strobilurin resistance to other common foliar diseases such as Septoria Brown Spot and Anthracnose has not been noticed in any commercial fields. To limit the spread and development of strobilurin fungicide-resistant *C. sojina* isolates, growers are urged to manage FLS thru the use of resistant and tolerant soybean varieties, crop rotation and use of effective triazole or triazole-strobilurin fungicide products for controlling FLS in susceptible varieties when appropriate. For additional information on FLS contact your local Extension county agent. △

DR. MELVIN A. NEWMAN: Professor, Extension Plant Pathologist, University of Tennessee

DR. CARL A. BRADLEY: Assistant Professor of Plant Pathology, Extension Specialist, University of Illinois