AGRONOMIC ALERT

Technology Development by MONSANTO

FROGEYE LEAF SPOT IN SOYBEANS

Frogeye leaf spot can be a major disease problem in soybeans. Leaf loss from frogeye leaf spot can translate into significant yield losses. The prevalence of frogeye leaf spot has continued to increase over the years. A combination of high temperatures, high humidity, and irrigation this season have provided for a favorable environment for disease development in some areas.

Biology. Frogeye leaf spot (FELS) is caused by the fungus *Cercospora sojina*. It is primarily a leaf disease, but it can also infect seeds, stems, and pods. The fungus survives on debris and on infected seeds as mycelium (vegetative body of the fungus). Spores (conidia), can be spread quickly to leaf tissue by splashing rain and wind. Hot, humid conditions favor infection and spread of the disease. Disease incidence is lower under dry and hot conditions.

Plant Symptoms. Plants that are infected from seed may have reduced germination, exhibit stunting, and may have lesions on the cotyledons. Infection occurs primarily on younger leaves as they develop and open, and symptoms include round to angular spots of various sizes that begin as water-soaked lesions. The spots darken and may have lighter centers and have dark red-brown margins. Older lesions have light gray-brown centers indicating sporulation. Lesions may coaslesce, and defoliation may occur under severe infection. Fully expanded leaves are more resistant. There may be sporadic layers of infection in the plant canopy depending upon how favorable the environmental conditions were when the leaves emerged. Stems may also develop long, narrow lesions that are reddish brown with black to brown margins. Reddish brown lesions may occur on the pods. They are circular but can elongate over time. Infected seeds may appear dark, shriveled, have cracked seed coats, or be absent of injury.

Scouting. Examine one area for FELS for every 10 acres of soybeans. Special care should be taken to examine areas of fields that have shade in the early morning, and any other areas of the field that may have additional moisture present. Check for FELS when soybean plants begin to bloom. Leaf lesions usually appear first on the lower to middle part of the plant. Lesions on the upper part of the plant are more common later in the season. The location and number of lesions can vary greatly on leaves and plants, within fields, and from field to field.

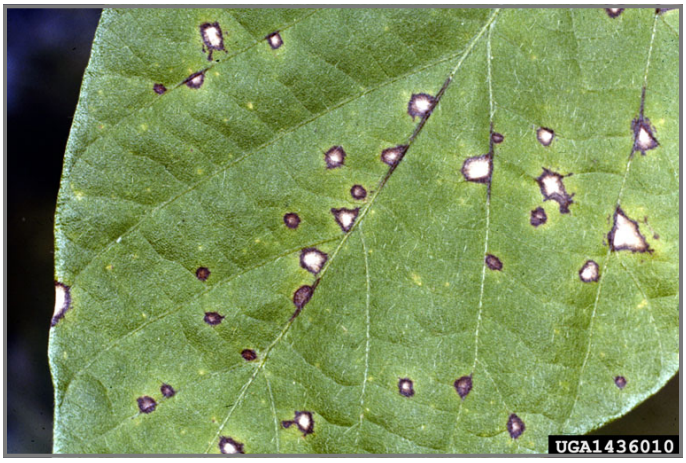

Figure 1. Leaf lesions from frogeye leaf spot. Clemson University—USDA Cooperative Extension Slide Series, Bugwood.org.

Management. Registered fungicides applied at the R2 to R5 growth stages can help control FELS. Fungicides applied to the seed will help control seed-borne infection.

Utilizing adapted varieties that are resistant to FELS is one of the best management options. Several management options are also available to reduce the amount of innoculum available for future crops. Use high quality seeds that are not infected with FELS. Use crop rotation to help manage FELS. FELS can survive on soybean residue in the field, so a rotation away from soybeans for approximately 2 years is recommended. Use tillage to bury and help destroy residue which could harbor FELS innoculum in the field.

Sources:

Coker, R., et. Al. 2006. Soybean diseases and their control. University of Arkansas, MP197 (verified 8/25/2010)

Westphal, A., et. al. 2006. Diseases of Soybean. Frogeye Leaf Spot. Purdue University, BP-131-W.

Wrather, A., et. al. 2009. Frogeye Leaf Spot. Plant Health Initiative. www.planthealth.info (verified 8/25/2010)