

## Frogeye Leaf Spot of Soybean

John Damicone, Extension Plant Pathologist

We have not found soybean rust in monitoring (sentinel) plots located in Oklahoma yet this year. However, leaf samples recently received from the soybean rust sentinel plot in Washington Co have significant levels of frogeye leaf spot. Frogeye leaf spot is also known as *Cercospora* leaf spot. The fungus *Cercospora* causes leaf spots on numerous crops including peanuts where it causes early leaf spot. Symptoms appear as dark, reddish-brown spots. As the spots age their centers become tan to grey in color, surrounded by a reddish brown border (Figure 1). When spots cover about 30% of the leaf area, leaves become blighted and premature defoliation develops. Arkansas and Mississippi have reported unusually high levels of frogeye this year despite drier than normal conditions.



**Fig 1.** Frogeye leaf spot on soybean.

There are several sources of resistance to frogeye leaf spot and races (strains) of the pathogen have developed in response to deployment of resistant varieties. Most of the research characterizing resistance and race development has been done at the University of Georgia using public varieties. Apparently the race situation in frogeye leaf spot is complex and poorly understood in commercial varieties. Races may change dramatically from year to year. If frogeye appears, one should assume that the variety is susceptible to the prevailing race.

Frogeye leaf spot has the potential to reduce soybean yield, and fields with good yield potential may respond to a foliar fungicide application. We have never had frogeye develop in our fungicide trials so data on yield responses in Oklahoma are not available. Most soybeans are currently in various reproductive stages of crop development. Those in the early reproductive stages (R3 to early R5) might benefit from a fungicide application if frogeye is present in the field. DMI (triazole) fungicides, strobilurin fungicides, thiophanate methyl, and premixtures of DMI and strobilurin fungicides all have good activity on *Cercospora* leaf spots. Consult the Extension Agent's Handbook for a listing of fungicides registered for use on soybeans.

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### **Bacterial Leaf Spot of Pumpkin**

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In a pumpkin trial being run for powdery mildew control, the heat thus far has prevented powdery mildew from becoming established. However, another foliar disease has taken its place, bacterial leaf spot. Bacterial leaf spot, caused by the bacterium *Xanthomonas cucurbitae*, is a sporadic but destructive disease. It affects all cucurbits species but is particularly severe on pumpkin. Symptoms appear as small, brown, angular spots on the leaves that are often surrounded by yellow borders (Figure 2). The spots appear water-soaked on the under sides of leaves. Heavily spotted leaves turn yellow and die (Figure 3). The disease appears relatively minor but can kill entire vines during periods of hot and humid weather when rains are frequent. If the vines survive, fruit infections can also result in severe crop losses. Fruit infections are initially small, water-soaked, tan colored spots that may be numerous on affected fruit (Figure 4). Spots enlarge and become sunken, resulting in fruit rot in the field or after harvest. In a previous trial where bacterial leaf spot was severe, nearly all the fruit in the trial were infected. Little is known about this disease except that it is seed borne. The pathogen also likely survives in crop debris. This was the second consecutive pumpkin crop in this field. Planting high-quality seed in a crop rotation program that includes cucurbits only once in three years is recommended. A spray program with copper fungicide such as copper hydroxide or copper sulfate is often recommended for control bacterial diseases. Its effectiveness on controlling foliar or fruit infections of bacterial leaf spot on pumpkin has not been demonstrated.



**Fig 2.** Bacterial leaf spot on pumpkin leaf.



**Fig 3.** Blighting of pumpkin foliage by bacterial leaf spot.



**Fig 4.** Fruit spots on pumpkin caused by bacterial leaf spot.

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