Questions and Answers on Soybean Fungicide Applications

Xiao-Bing Yang
Iowa State University, xbyang@iastate.edu

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Abstract
As the difficult planting season passes, we continue to receive not so positive reports on soybean and corn with the development of foliar diseases due to weather conditions. In Iowa there have been many observations and questions on soybean foliar diseases, especially brown spots, by field crop specialists and producers. Producers have questions about how and when to use fungicides to control foliar diseases. This article addresses some of those questions.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology

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Questions and Answers on Soybean Fungicide Applications

XB Yang, Department of Plant Pathology
As the difficult planting season passes, we continue to receive not so positive reports on soybean and corn with the development of foliar diseases due to weather conditions. In Iowa there have been many observations and questions on soybean foliar diseases, especially brown spots, by field crop specialists and producers. Producers have questions about how and when to use fungicides to control foliar diseases. This article addresses some of those questions.

What diseases to look for?
For this season, two diseases especially deserve our attention, brown spot and frogeye leaf spot.

The most common disease is brown spot, which is caused by the fungus Septoria glycines. Disease symptoms occur on the lower leaves of soybean plants. The fungus is spread by splashing rains, which has been frequent from the beginning of spring.

Soybean leaves infected with brown spot.
Symptoms include many irregular, dark brown spots on both upper and lower leaf surfaces. Adjacent lesions frequently merge to form irregularly shaped blotches, and you will not miss it when scouting. Brown spot usually does not cause damage unless the disease progresses quickly with frequent rains later in the season. Currently the disease is prevalent in many areas with incidence over 90 percent according to surveys, a much higher incidence compared with other years.

Another disease to look for is frogeye leaf spot caused by the fungus Cercospora sojina, which has become a frequent visitor to Iowa soybean fields in the past, especially in river bottom fields. The disease causes small,
gray spots with reddish-brown borders to appear on the upper leaves. In severe cases the disease can cause premature leaf drop and form brown spots on stems and pods.

*Soybean frogeye leaf spot.*

An erroneous report of soybean rust damage in 2006 was actually a case of severe defoliation by frogeye leaf spot. It is quite early to observe frogeye leaf spot in the first week of July, as in most seasons it is found in later July or early August.

*Is there a need to spray?*

Field spray experiments or stripe spray trials by the Iowa Soybean Association consistently suggest that yields benefit when foliar diseases were present. With the weather so wet and soybean price so high, it is a no brainer to conclude that spray fungicides this season can control soybean foliar disease and increase yields.

We had debates on the use of fungicide in other years, and this year would be the year to see the benefits unless we are fooled by Mother Nature and the rest of season becomes hot and dry. The diseases have already established in many soybean fields and could become worse in the late season, like what happened in 1993. The chance to see yield benefits from a spray so far is much higher than most normal years.

*When is it time to spray?*

In our data from the last few years’ experiments in Nashua and other locations, the best control with one spray in terms of yield increase for later season foliar diseases is at R3-R4 growth stage (last week of July and early August). However, this year the disease occurs earlier, and a spray at R3 growth stage or later may not reproduce the results that we have had in a normal weather year. The outcomes depend on the weather in July and August.

If the rainfall is less intensive in the two months, a spraying at R3 may still control the disease well. If the weather in August is like last August’s, which had a record rainfall, one spray may not stop the disease, as most fungicides only provide two-three week protection period. But we do not recommend two sprays because of damage to soybeans caused by driving in the fields in August.

*Bacterial blight*

Also reported is *bacterial blight*, a foliar disease similar to brown spot. Bacterial blight also requires rainfalls for its spread, and its symptoms are similar to brown spot. However, this disease cannot be controlled by fungicide application because the casual agent is bacterium.
Besides the three diseases mentioned, *Cercospora leaf spot* has also been found. Another disease we should not forget is *pod and stem blight*. The disease was reportedly widespread last year and caused seed quality problems this spring. Fungicide sprays should help reduce the risk of this disease, especially for seed productions.

*XB Yang is a professor of Plant Pathology with responsibility of soybean diseases.*