## **Did it Pay to Apply Foliar Fungicides in Soybeans**

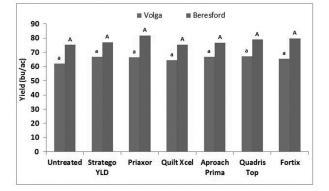
BROOKINGS, S.D. - To determine if fungicide treatments positively impact soybean yields, SDSU Extension Plant Pathology program conducted foliar fungicide trials sponsored by the South Dakota Soybean **Research and Promotion** Council.

"A number of producers asked whether there is a return on investment with fungicide application on soybeans. What the test plot data shows, is that the probability of fungicide treatments to increase soybean yields depends upon disease severity in the field," said Emmanuel Byamukama, SDSU Extension Plant Pathologist.

Byamukama explained that the study was motivated by the fact that in South Dakota several acres of soybeans are routinely treated with fungicides. According to a 2012 United States Department of Agriculture (USDA) report, 11 percent of soybean acres were treated with a fungicide in the 19 major soybean producing states, including South Dakota.

Foliar fungicide trials The trials were planted at the SDSU Southeast Research Farm, in Beresford on May 28, 2015, and at the Volga Research Farm on June 2, 2015.

Plot size used was 5-feet-



Yield (a) and disease severity (b) for different fungicides applied at beginning of flowering at Volga (blue bars) and Beresford (red bars) during the 2015 growing season. - See more at: http://igrow.org/news/didit-pay-to-apply-foliar-fungicides-in-soybeans/#sthash. gcT2kePt.dpuf

by-15-feet and row spacing 30 inches. Six commonly applied foliar fungicides in soybeans in South Dakota were used in this study. The fungicides were

applied at R3 (beginning pod) growth stage. Plots were assessed for disease severity (percent plot disease severity on the upper canopy) 28 days after fungicide application.

"We saw very low foliar disease pressure in soybeans at both locations. Yield data showed no statistical difference within fungicides and also when compared with non-treated plots," said Byamukama (Fig.1). "The lack of statistical difference indicates that the numerical difference between fungicides and non-treated plots can be attributed to chance."

Byamukama said this is not surprising given that there was such low disease pressure at both test locations.

"We did notice, however, at the Volga location where there was some disease presence, that all fungicide treated plots had significantly lower disease severity compared to non-

20 Volga Beresford 16 12 Disease severity (%) 8 4 a b b b 0 Untreated Stratego Priaxor Quilt Xcel Aproach Quadris Fortix YLD Prima Top

Some of the common soybean foliar fungal diseases in South Dakota (a) Brown spot/Septoria, (b) Cercospora leaf spot. - See more at: http://igrow.org/news/did-itpay-to-apply-foliar-fungicides-in-soybeans/#sthash.gcT2kePt.dpuf

treated plots."

The 2015 foliar fungicide trial results are not different from previous years' data or data from other universities in the region. "Yield increase from applying fungicides in soybean is dependent on the level of disease severity. This should be the overriding factor when deciding whether to apply fungicides in soybeans," he said.

5 percent severity justifies fungicide application Byamukama explained that disease severity de-

pends on the environment, mainly moisture and temperature, but also on cultural

practices like crop rotation, tillage, and susceptibility of the cultivar planted.

Conditions that are conducive for fungal diseases to develop include wet and warm weather, especially around R1 (flower primordia), susceptibility of the cultivar planted, field conditions such as soybean following soybeans and no-till or conservation tillage.

Scouting soybeans at R1 should indicate the amount of disease developing. Byamukama said applying fungicide is justified when fungal leaf diseases such as brown spot, Cercospora leaf spot, downy mildew, and frogeye leaf spot can be observed in the middle canopy of every soybean plant at 5 percent severity or higher.

"Since conditions vary from field to field, producers are encouraged to setup test strips of treated and non-treated foliar fungicide in their fields to determine if fungicides would be beneficial," Byamukama said.

For assistance in setting up fungicide strip trials, producers interested can contact the SDSU Extension Plant Pathology program 605.688.4521 Grow





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