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Update on soybean diseases and their management

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There were several diseases that appeared in soybean fields in 2016. While diseases were not common early in the season, by late July they became more prevalent. Some of the most prevalent diseases during the 2016 season were bacterial pustule, frogeye leaf spot, sudden death syndrome (SDS), and white mold. This talk will focus on these specific diseases and provide updates on management of soybean diseases in general.

Bacterial pustule

Although bacterial pustule is fairly uncommon, it was one of the most often observed foliar diseases in 2016. The appearance of this disease was likely associated with the warmer-than-normal temperatures and heavy rainfall. Some fields had enough bacterial pustule to cause defoliation in localized areas, which caused it to be confused with soybean rust. As it turns out, soybean rust was more active than normal in the south.

Frogeye leaf spot

Frogeye leaf spot is a commonly observed foliar disease, but is often not yield-limiting in Iowa. In 2016, this disease was easy to find in many fields my middle of August. As we evaluated disease in fungicide research trials across Iowa, we found that frogeye leaf spot was the most prevalent disease found in the upper canopy. All foliar fungicides were effective at managing frogeye leaf spot in our trials in 2016, and many resulted in higher yields compared to the untreated control. We are currently testing isolates of the frogeye leaf spot pathogen for fungicide resistance.

Sudden death syndrome

SDS was once again the most common soilborne disease in Iowa in 2016. The disease appeared early in some parts of the state, but others did not observe SDS in fields until later in the season. We evaluated several different management strategies in 2016, including corn residue management, cover crops, tillage, and seed treatments.

White mold

The last two years white mold has been severe in parts of the state. With the warmer-than-normal temperatures, we anticipated this disease to not be present. However, even with the warm temperatures, white mold was reported throughout Iowa. Severity levels were not has high as the past few years. We evaluated fungicides for management of white mold.

Table 1. Effect of foliar fungicides on frogeye leaf spot in Ames, Iowa in 2016.

Fungicide	Frogeye leaf spot (severity at ~R6)	Yield (bu/A)
UTC	23.8	63.3
Headline	2.2*	72.2*
Fortix	4.1*	71.3*
TopGuard	0.5*	69.6*
Topsin 4.5	3.0*	71.7*
Quadris Top SBX	1.9*	68.9*
Domark	2.9*	70.6*
Topsin XRT	1.9*	69.5*
Priaxor + Tilt	2.7*	73.2*
Stratego YLD	1.8*	67.1
Stratego YLD + Proline	4.3*	66.7
Affiance	1.9*	69.9*
P-value	0.0002	0.07
CV	132.10	5.70
	6.70	4.73

*Significantly different than the untreated control (UTC)

Twitter campaign

In 2016, we started a Twitter campaign to encourage farmers and agronomists to use social media for disease tracking and information collection purposes. A variety of communication outlets were used to reach out to farmers and agronomists across the United States, such as print, web, social media, video and email, asking them to capture a photo of the disease and tweet about it on social media. They were asked to include the name of the disease (or what they suspected it was), their county, state and use the Twitter handle @*soydisease*. The goal of the social media postings was to help us track specific diseases and see where they were showing up in the U.S. This information also helped farmers and industry be more prepared. For example, if someone posted that they found SDS, then others in the area were more aware that the disease had been observed in close proximity, allowing all parties to be prepared; for farmers and agronomists, it was scouting, for us, it was getting ahead of the issue and preparing timely management information in advance. The @*soydisease* Twitter account had 295 followers, 78 mentions, 5,077 impressions, and 3,477 profile visits from February 2016 to October 2016.