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Disease Considerations for 2011 Soybean Variety Selection

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Disease Considerations for 2011 Soybean Variety Selection

Abstract

As producers plan for the 2011 soybean growing season, many will make disease management a high priority because of the outbreaks of sudden death syndrome (SDS) in 2010. Some soybean producers will select soybean varieties for the coming season according to what happened during the last season. While picking up SDS resistant or tolerance varieties may seem to be a good decision, the risk of white mold should be considered as well, particularly in northern Iowa where white mold was wide spread in 2009. It is too early to say what disease may have outbreaks for the coming season.

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Disease Considerations for 2011 Soybean Variety Selection

By XB Yang and Xun Li, Department of Plant Pathology

As producers plan for the 2011 soybean growing season, many will make disease management a high priority because of the outbreaks of sudden death syndrome (SDS) in 2010. Some soybean producers will select soybean varieties for the coming season according to what happened during the last season. While picking up SDS resistant or tolerance varieties may seem to be a good decision, the risk of white mold should be considered as well, particularly in northern Iowa where white mold was wide spread in 2009. It is too early to say what disease may have outbreaks for the coming season.

Risk of white mold

For growers doing corn-soybean rotation, fields that had white mold in 2009 still pose a serious risk for white mold in 2011 production, with level of occurrence depending on summer weather conditions. The reason is that in a year of normal weather, corn canopy may provide shaded and cool conditions so that sclerotia from the previous season may germinate and won't threat soybean in the next season. However, that was not the case for this year's weather. In July and August 2010, although mean temperature was only slightly higher than normal, night temperature was much higher so that diurnal temperature range was small. White mold sclerotia need cool and wet weather (temperature around 65F and good soil moisture) to produce apothecia, mushroom-like structures of the fungus ([see previous article](#)), that produce airborne ascospores for infection. The warmer-than-normal summer night temperatures in 2010 gave white mold sclerotia a very limited time window to produce mushrooms. Northern Iowa field surveys in early July yielded very limited counting of mushroom in corn fields this year, which means a lot of sclerotia will be available for the next season in these fields when soybeans are planted.

Risk of sudden death syndrome

The wide spread of SDS in the 2010 season suggested that SDS fungus was present in almost every Iowa soybean field. The disease was also prevalent in 2009 although not as severe as 2010 season. This means that the SDS pathogen is widely present in Iowa and inoculum is unlikely a limiting factor of outbreak in Iowa. Therefore, the risk of SDS is equally serious.

Risk of other diseases

A 1998 study on climate change and plant disease suggested that climate change would lead to an increase in extreme weather events, which leads to more frequent pest and disease outbreaks because these outbreaks are associated with extreme weather events. Because the type of extreme weather events is unpredictable, next season's weather may favor diseases other than SDS or white mold. Diseases that have been a problem on a farm in recent years should not be forgotten. This winter may impact the disease profile of next summer greatly.

In general, both SDS and white mold have built sufficiently high amount of inoculum in soybean fields in Iowa. What disease may have greater risk of

outbreak will be determined by weather conditions next summer. One will have a better clue when spring is approaching, as we did last March when [predicting the SDS risk](#).

What to select

If only one disease is a concern, the answer is simple, select a variety resistant to that disease. If both SDS and white mold are major production concerns in a particular field, I would use varieties to manage SDS risk and consider a fungicide to manage white mold risk when its risk becomes more certain. Effective fungicides now are available on the market to control white mold without yield penalty when mold is a threat in summer.

Keep in mind that not every variety labeled as resistant is really resistant. More progress in SDS resistance breeding is yet to be made. Resistant varieties in early maturity groups are less reliable than those in later maturity groups.

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