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Using Fungicide to Reduce White Mould in Soybeans

by Paul Sullivan, CCA-ON

The risk of white mould (*Sclerotinia sclerotiorum*) developing in soybeans is a concern across Ontario in 2015 because of plentiful moisture through June. The reality is that the weather through the rest of the summer will have a greater impact. Fields that have had white mould problems in 2013 and 2014 and are growing soybean this season will be most vulnerable to infection.

White mould affects soybean fields with high yield potential. Some management strategies to increase yield, also increase the risk of white mold. Plant stands with higher plant population, (> 180,000) more nodes (tall and branching) and longer flowering varieties (fuller season) have more risk of mold affecting the crop. Later plantings (meaning longer flowering) period also increase mould risk.

The reason for mould developing in these fast growing/high yielding canopies is because they keep the ground damp and are less likely to let the soil dry out.

Apothecia grow from overwintering sclerotia

They release spores that land on flower petals. As the flowers pollinate, the petals die and provide a food source for the disease to develop. If a flower petal drops on a lower part of the plant then the disease starts on the plant if the canopy stays moist.

Recent registrations of new fungicides (Acapela, Priaxor, and Allegro) provide an option for white mould management. Fungicide application work conducted by OMAFRA and the University of Guelph in 2014 resulted in yield gains of over 10 bushel/acre. 2014 was a high infection year.

Recent trials in Michigan indicate that fungicides are not a silver bullet for white mould management. Trials in 2013 provided 80 % control but in 2014 only 9 % control was attained. There is a high degree of complexity and many interactions that impact white mold control.

Most of the fungicide application strategy to date on soybeans in Ontario was aimed at reducing stress in soybeans by controlling leaf

diseases and providing a plant health boost. The best timing of application for this effect is around the time the soybean plant has formed a few pods on the lower stem. This is shortly after the full R2 stage when there is one open flower on one of the top 2 nodes.

A fungicide strategy to impact white mould must protect the flowers (and also soybean plant tissue) from spore infection for an extended time. Soybean plants flower over a period of 3 to 5 weeks in Ontario. The plant continues to grow vegetatively as they flower on the lower nodes. Eventually there are flowers on the top of the plant and pods forming on the lower plant. **Two** (2) applications are needed for consistency in controlling white mould. Most fungicides remain active for about 2 weeks after application. Therefore, 2 applications extends the disease protection for the canopy and the flowers.

If the weather conditions are damp as flowering begins, and the field has a large canopy to hold in the moisture (about 12 to 15 inches tall), a fungicide application 10 to 12 days after the first flower petals may be better than waiting.

Earlier applications are most effective versus waiting too long!

Fungicides are preventative and not systemic. Once mould starts current products have no activity on the disease. Plant tissue growth appearing after application has limited to no protection for disease developing.

Dry weather and warm temperatures will look after some control throughout the flowering season. So it is important to consider the previous and forecasted weather in a decision on fungicide application. The weather will improve or reduce the efficacy of the fungicide.

If your neighbours are complementing you on your good looking soybean crop in June, your field may be a candidate for white mold control in early July. Ask your CCA about using a fungicide for managing white mold in your 2015 soybean crop.

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