White Mold in Soybean

White mold, also called Sclerotinia stem rot, is a disease that thrives under cool and moist conditions, and can substantially reduce soybean yields. A potentially high yield soybean crop with a dense canopy, susceptible soybean product, and a field history of white mold favor this disease. Management should be based on field history and integration of soybean product tolerance, cultural practices, and chemical control options.

What to Watch For

White mold is particularly problematic in high yield environments and soybean fields with dense canopies during the reproductive growth stages, coupled with rain, fog, or dew. Cool temperatures (below 85° F) and moist environmental conditions help create a microclimate where the development of white mold can thrive.¹

White mold is a relatively easy disease to identify. It gets it's name from the white, fluffy, cottony growth on the outside of the stem and on the pods (Figure 1). Other symptoms include wilted leaves, stems that appear “bleached”, and shredding of stem tissue. Sclerotia, small black structures that resemble mouse or rat droppings, can be found on and inside plants that have been affected by white mold.

Tips to Manage

White mold management is challenging when environmental conditions favor the disease. Management plans should be based on field history and integration of several management tactics that include soybean product tolerance, cultural practices, and chemical control options.

Crop Rotation. White mold has a wide host range and sclerotia have the ability to survive in the soil for several years. However, most sclerotia die over a three to four year period between soybean crops, so rotation to non-host crops like small grains and cereals can help reduce the sclerotia load in the soil over the long term.

Tillage. The effects of tillage on white mold is inconsistent. Deep tillage may initially reduce the incidence of white mold, but additional tillage can bring the sclerotia back to the surface where they can germinate. Several studies have indicated lower levels of the disease in no-till fields. Tillage may spread sclerotia within the field; therefore, in no-till fields sclerotia may remain confined to hot spots. Reduced tillage and no-till are preferable for fields with a history of white mold infestation.²

Figure 1. Soybean stem affected by white mold, also known as Sclerotinia stem rot.

Figure 2. Apothecia fruiting body of white mold.

Figure 3. Sclerotia mixed with soybean seed after harvest.
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Product Selection. No soybean products are completely resistant to white mold, but tolerant products can be effective in managing the disease.\(^3\) For fields with a history of white mold, tolerant products should be planted. Planting susceptible products should be avoided in fields with a history of white mold, low-lying areas, or areas with natural barriers to wind movement, such as tree lines.

Row Spacing. Wider row spacing (> 20 inches) may reduce the incidence of white mold, but does not necessarily correspond with an increase in yield.\(^3\)

Plant Population. High plant populations contribute to dense, closed canopies. Higher populations (175,000 plants per acre or greater) have been associated with increased white mold incidence.\(^2\) In fields with a history of white mold, consider decreasing plant populations; however, be sure populations maintain yield potential.

Chemical Control. Outbreaks may be reduced by applying fungicide during flowering. This requires accurate application timing and prediction of disease onset. Fungicides may be most effective at reducing the impact of white mold when applied at, or near, growth stage R1.\(^4\) Results are typically inconsistent when applications are made after symptoms have already developed. Table 1 lists pesticides currently registered for suppression or control of white mold in soybean.

There is some evidence that herbicides that shorten plant height and a thin plant canopy are associated with a lower incidence of white mold, especially when used in an environment that favors white mold development. The application of 6 fl oz/acre of Cobra® herbicide just prior to R1 has been shown to suppress white mold in moderately susceptible soybean products.\(^3\)

Other Management Tools. Sporecaster, the white mold forecaster developed by the University of Wisconsin, has been developed to help predict the probability of white mold apothecial present in a soybean field. Growers can download the Sporecaster app and input site-specific information into the app, which combines field information with the research-based models to predict the best timing for white mold treatment in that field.\(^5\)

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<th>Table 1. Products currently registered for suppression or control of white mold on soybean.</th>
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<td>Product Type</td>
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\(^{*}\) Fungicide products rated as Good to Very Good on the Foliar Fungicide Efficacy for Control of Foliar Soybean Diseases by the North Central Regional Committee on Soybean Diseases—January 2017.


Web sources verified 07/10/2018. 130627060134