DELARO®

In-season
White Mold Management

White mold, also called Sclerotinia stem rot, may not be problematic in every growing season, but those who have battled the disease in the past should assess the risk of white mold as soybeans approach the flowering or R1 growth stage. The R1 growth stage is defined as plants having at least one flower at any node (Figure 1).

Identification

White mold is a relatively easy disease to identify. It is so named because the fungal disease produces white, fluffy, cottony mycelial growth on the outside of the stem and on the pods (Figure 2). Other symptoms include wilted leaves and stems that appear "bleached" and shredding of the stem tissue. Sclerotia, which are small, black structures that resemble mouse or rat droppings, can be found on and inside soybean stems that have been infected by white mold (Figure 3). When conditions are favorable, sclerotia germinate to produce apothecia (0.25-inch mushrooms) (Figure 4). These apothecia release hundreds of thousands of spores capable of infecting a soybean plant through the flower petals. It is important to note that there are other fungal species that produce mushrooms that can be confused with white mold apothecia, especially birds nest fugus, which is a harmless organism that breaks down corn stubble and other organic debris.

Figure 1. Soybean at the R1 growth stage of development.

Figure 2. Soybean stem affected by white mold, also known as Sclerotinia stem rot.

The occurrence of white mold depends on weather conditions during soybean flowering and early pod-fill stages. Crop management decisions can interact with pathogen biology and weather to determine the potential risk of white mold. Seasonal risk factors to consider include:

- *Weather – White mold is favored by rain, cool temperatures, high relative humidity, and moist soils at and following flowering and early pod development.*
- *Field and/or Cropping History – Previous host crops, short crop rotations between soybean crops (such as a corn-soybean rotation), and soybean product susceptibility can all lead to a build-up of sclerotia in the soil.*
- *Soybean Canopy – White mold is more problematic in high-yield environments with high populations, narrow rows, and early canopy closure.*

Sporecaster is a smartphone application designed by University of Wisconsin to help farmers predict the need for a fungicide application to control white mold in soybean.[1] It uses university research to help forecast the risk of apothecia being present in a soybean field. This information can be used to target fungicide application timing with soybean flowering. It is available through both Android and Apple platforms.

Long-term white mold management requires a combination of management practices including product selection (especially in fields with a history of while mold), control of weeds that are hosts, reduced tillage, applying a fungicide during flowering, and a long crop rotation with non-host crops such as corn and wheat.

In-Season Management

Options are somewhat limited for control of white mold during the growing season. A fungicide application can help prevent white mold, but not all products are labeled for white mold. White mold infects through the flowers, so applications should be made at the beginning of flowering (R1) with a possible follow-up application a week or two later, up until the beginning of pod development (R3). The disease cycle is dependent on infection through flower petals, so it is imperative to get a fungicide on to protect the flowers. This includes correct timing as well as good penetration of the fungicide product deep into the foliage. Once disease symptoms are present in the soybean crop, it is too late to save infected plants.

Delaro® fungicide offers a broad-spectrum disease control in soybean, including suppression of white mold, with dual modes of action. Delaro fungicide should be applied prior to disease development at the R1 growth stage with a second application at the R3 growth stage as needed. For specific rate and application timing information please visit https://www.cropscience.bayer.us/products/fungicides/delaro/ and contact your retailer.

Effectively managing the risk of white mold can be a complicated process. Implementing some of the above practices can help reduce the effect of white mold during the growing season while also helping to maximize soybean yield potential.

Figure 3. Sclerotia of white mold on a soybean stem.

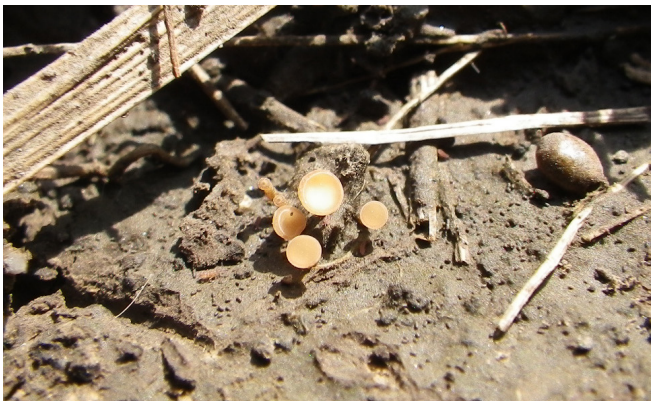

Figure 4. Apothecia fruiting body of white mold.

Sources:

1Smith, D. and Conley, S. May 18, 2018. New smartphone app: Sporecaster, the white mold forecaster. Wisconsin Crop Manager. Integrated Pest and Crop Management. University of Wisconsin-Madison. http://ipcm.wisc.edu.

Smith, D. White mold risk assessment. Wisconsin Field Crops Pathology. University of Wisconsin-Madison. http://fyi.extension.wisc.edu.

Mueller, D. July 2, 2014. Managing white mold in soybean. ICM News. Iowa State University Extension. http://crops.extension.iastate.edu.

Chilvers, M. June 24, 2015. White mold of soybean and foliar fungicides. Michigan State University Extension. http://www.canr.msu.edu.

Mueller, D., Bradley, C., Chilvers, M., Esker, P., Malvick, D., Peltier, A., Sisson, A., and Wise, K. June 2015. Soybean disease management: White mold. CPN-1005. Crop Protection Network. http://www.ncsrp.com.