Managing White Mold During the Post-Harvest Season

During harvest many producers may observe soybean fields with Sclerotinia stem rot (white mold). While the damage is already done for this growing season, there are some tactics that can be used to reduce the risk of future white mold losses.

Harvest

Rarely is the entire soybean field infected with white mold. Commonly, the infection is concentrated in lower areas of the field, those portions shaded by shelterbelt trees, and in some cases the entry point of the field. In these situations, it may be wise to avoid harvesting the severely infected areas of the field. By harvesting, sclerotia (the overwintering structures of the fungal pathogen) will become lodged in the combine, thus spreading them to other areas of the field or transporting them to other fields. If the field has a substantial amount of white mold, cleaning the combine may help prevent the spread of the sclerotia to other fields.1 By estimating the level of infection in each field and rating them accordingly, harvesting the most heavily infected field, or areas of the field, last may also prevent the spread of sclerotia.

Most producers plant soybean in rotation with other crops, particularly corn. Since soybeans are usually harvested first, by not cleaning out the combine after soybean harvest, sclerotia can be moved to fields where corn is being harvested. If these fields are planted to soybean the next year, the field could be at a higher risk for infection. If the combine is not cleaned prior to harvesting corn, consider harvesting the corn in a specific area, along one field margin for example. By noting that area, an application of fungicide could be focused in that area in the next growing season, reducing the cost of a fungicide application across the entire field.

Harvesting soybean straw

Soybean straw or residue can be used for livestock bedding; however, if the residue is from a field heavily infected with white mold it may contain substantial amounts of sclerotia. Returning the residue back to the same field would prevent the inoculation of other fields with the disease.

Tillage

Aggressive tillage of soybean stubble infested with white mold can result in burying the sclerotia, thereby enhancing their survival by not allowing them to be exposed to the elements. If subsequent tillage brings them back to within 2 inches of the soil surface, it will allow them to germinate and release infectious spores. Leaving the sclerotia on the soil surface and exposing them to the elements increases the decay rate.2,3 One management strategy for using tillage to reduce white mold is to bury the soybean stubble after harvest in infected areas of the field when the infection rate is high. In the subsequent cropping season, limit tillage to minimize the return of sclerotia to within two inches of the soil surface.

Biological control

There is a biological control agent for white mold, Coniothyrium minitans, which is a fungal parasite of the sclerotia.4 This agent is active in the top 2 inches of the soil. There are two commercial formulations of this biological control agent, Contans® WG and KONI®. They can be applied after harvest in the fall as a spray over the crop residue. For the best control use light tillage, no deeper than 2 inches. Research conducted in the greenhouse has demonstrated a reduction of 81.2% of apothecia (spore-bearing structures that form on sclerotia) and 50% of sclerotia with an application of Contans® WG.4

White mold is a disease best managed by using cultural tactics to reduce the incidence of the disease; use of tolerant soybean products, wider row spacing, lower planting populations, crop rotation, nutrient management, and irrigation management are all things that can reduce the incidence of disease in-season.5 Harvest and after harvest tactics are more focused on preventing infection in the following growing season and preventing the spread of the pathogen to other fields.

Sources

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