SOLVING WHITE MOLD & SDS IN SOYBEANS

A MULTI-STEP APPROACH

BY JARED COTTENIE

The genetic potential of your seed is highest when it first goes into the ground. Adverse weather, fungal pathogens, and other stressors can all negatively impact your yields.

Farming in the North Central Region, you're probably familiar with white mold and sudden death syndrome (SDS), but did you know 40 to 50 million acres of soybeans are affected annually? SDS and white mold not only impact your bottom line, but also threaten the sustained production of soybeans in the North Central Region.

WHITE MOLD & SDS

White mold (Sclerotinia stem rot) produces tough survival structures called sclerotia. Research by X.B. Yang, Ph.D., out of Iowa State University has shown sclerotia can survive in soil for up to seven years, even through crop rotation. If you had white mold in 2020 and are rotating back to soybeans in 2022, you have an increased risk of disease reoccurring.

Sudden death syndrome is caused by a soil-borne fungal pathogen which invades the roots and lower stem of the plant, producing toxins that are taken up into the leaves. Disease that develops early in the season can result in significant yield loss.

Due to the longevity of the inoculum left in your soil after harvest, disease cycles of both white mold and SDS are difficult to break. It's important to work with your agronomist in developing a disease management plan specifically tailored to your fields. While there is no one way to eliminate these diseases, a multi-step approach that includes Heads Up® Seed Treatment can offer protection.

THE MULTI-STEP APPROACH FOR DISEASE PROTECTION

- First and foremost, it's important to select a seed variety best suited for your unique growing environment. All plants have innate resistance against fungal and bacterial disease. Extensive breeding in soybeans has led to the ability for many seed companies to be able to rank their seed varieties from moderately susceptible to moderately resistant against different disease pathogens. Heads Up® is non-fungicidal, instead functioning through a mode of action called ***systemic acquired resistance.*** S.A.R "turns on" and engages your plants' defenses upon germination, activating the full genetic potential of your chosen variety.

TOP: White mold infecting the stem of a soybean plant.

LEFT: Sudden death syndrome causing necrosis in soybean leaves.

- Rotate crops to reduce the amount of inoculum (sclerotia) remaining in the soil. In heavily infected soil, consider a rotation out of soybeans or other host crops for more than two years.
- Consider using a fungicide at the R1-R3 growth stages. Applying Heads Up® prior to planting can potentially reduce your need for additional passes of fungicide, saving you money and time otherwise spent on second or third applications.
- Plan, plan, plan. Make notes of highly infected areas for future planting consideration. Harvest heavily infected areas last to reduce the spread of inoculum.

In University research across the United States and Canada, Heads Up® has been shown to provide significant advantage in moderate to high disease pressure. When white mold is present, growers have noted:

- Fewer dead and infected plants.
- A reduction in yield loss, sometimes saving as much as 7 to 10 bushels per acre.
- Less sclerotia returning to your soil, positively impacting soil health and future planting. If you're rotating with corn in no-till fields, any sclerotia within 2 inches of the soil surface will germinate under the corn canopy, reducing the amount of pathogen remaining when you rotate back to beans.

A WINNING STRATEGY

The best thing you can do to combat disease is pair Heads Up® with fungicides and inoculants that utilize different modes of action, therefore "stacking" your protection. Heads Up® has no living organisms, meaning it is compatible with other seed treatments and can be applied days, weeks, or even months prior to planting. Heads Up® can also be used alone and is OMRI™ certified for organic use.

ABOUT HEADS UP®

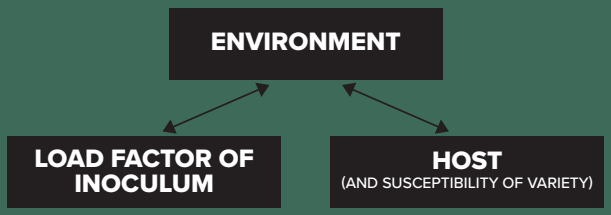
A biological plant activator, Heads Up® is the only seed treatment that has been proven to protect against both white mold and SDS. With limited options available for SDS, and white mold protection scarce, it's been our goal over the past 15+ years to provide a product backed by thorough, third-party research that can help protect farmers from these challenging diseases.

As a family owned and operated business that has farmed and works with farmers, our team understands your concerns. With supply chain disruptions challenging many businesses in 2022, we've been getting questions about product availability, but because we manufacture and store everything in Canada and the United States, you don't have to worry about disruptions or shortages. Heads Up® was made for hardworking farmers such as yourself, and we'll have no problem getting you product to keep your crops protected this year and beyond.

WHAT IS SYSTEMIC ACQUIRED RESISTANCE (S.A.R.)?

When a plant is attacked by a fungal disease pathogen, the plant, realizing it is under attack, stimulates defensive "warning signals" which translocate throughout the plant and stimulate defense. This signalling event activates key defense pathways – jasmonic and salicylic acid – leading to the accumulation of salicylic acid, which helps to stop localized infection and enables P.R. (pathogenesis related) proteins.

While early defensive signalling will help slow down the spread of infection and prevent future yield loss, total yield loss depends on factors associated with the disease triangle below:



Yield loss will be greater for some diseases (like sclerotinia white mold) if you have an extremely wet, cloud covered environment, with a high load factor of sclerotia in the soil and a susceptible soybean cultivar.

Heads Up®, while not active on the disease itself, stimulates the defensive abilities of the plant early. By early activation of key defense pathways prior to infection, the plant is better able to utilize its genetic resistance by "priming", or establishing itself in a ready state before disease sets in.

This unique mode of action (S.A.R.) has shown a significant effect in reducing yield loss by early disease resistance priming. Systemic acquired resistance, while not active on any particular disease, has proven to be a broad-spectrum systemic and provides a full season response.

heads UP®
PLANT PROTECTANTS INC.