Disease cycle

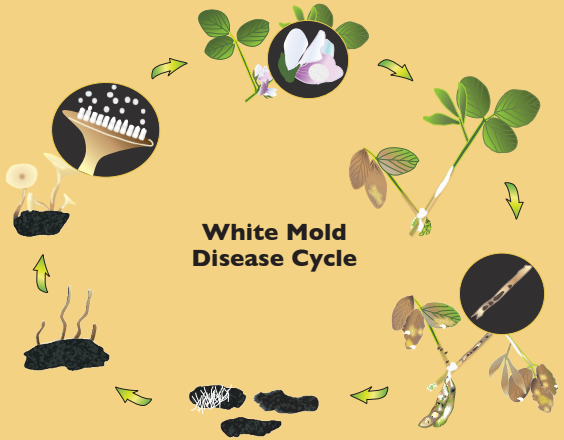
White mold (also called Sclerotinia stem rot) can substantially reduce yield in soybean. This disease, caused by *Sclerotinia sclerotiorum,* is especially problematic in fields with dense canopies during early reproductive growth stages coupled with rain, fog, or dew. These conditions create a shaded, moist microclimate conducive to disease development.

Sclerotia – Survival structure that is hard and black with a white interior. Can survive for many years if buried, substantially less in reduced tillage fields. Size ranges from about 1/16 to 1 inch.

Apothecia – Mushroom-like structure growing from sclerotia within the top two inches of soil profile; approximately 1/8 to 1/4 inch in diameter, tan, and cup-shaped. Often form when canopy closes.

Ascospores – Microscopic spores that are released by the millions from apothecia. Spores infect dying flowers.

Mycelia – White fungal growth that spreads from dying flowers. Can move to petioles and stems and may spread to adjacent plants. Eventually mycelia form sclerotia, both inside and outside of soybean plant parts.



Scouting for White Mold in Soybean

Acknowledgments

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Photographs

All photos were provided by and are the property of the authors except the top two images on Risk panel, top and lower left images on Scouting panel, and image on Management panel courtesy Craig Grau, University of Wisconsin. Disease cycle illustrated by Renée Tesdall.

Sponsors

The Soybean Disease Management series is a multi-state collaboration sponsored by the North Central Soybean Research Program (NCSRP). This project was funded in part through *Growing Forward 2* (*GF2*), a federal-provincial territorial initiative. The Agricultural Adaption Council assists in the delivery of *GF2* in Ontario. Contributors to this series come from land-grant universities in the North Central states and Canada.

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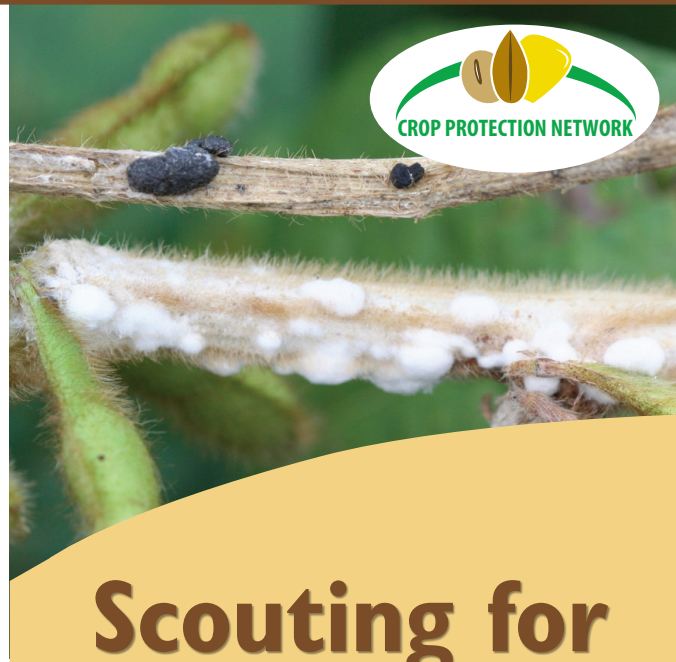


CROP PROTECTION NETWORK

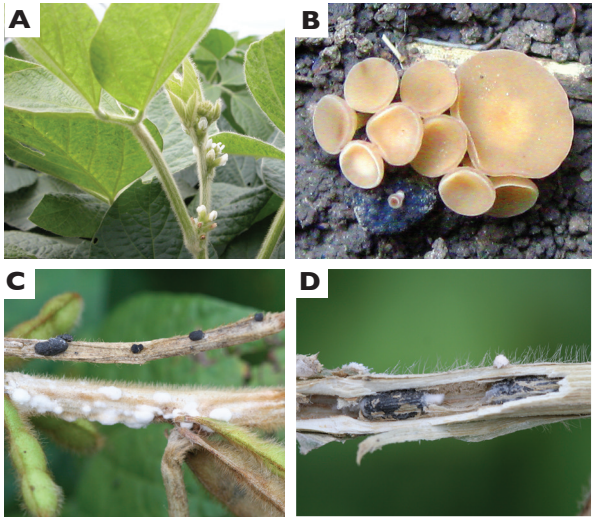
Scouting for White Mold in Soybean

CPN 1010A

Risk

Taking accurate notes about where and how much white mold occurs in each soybean field is important for future disease management planning. Tracking disease levels across years also will help determine the potential sclerotia (inoculum) load and the disease risk that may be present in a particular field.

Seasonal and long-term factors favoring white mold risk in soybean include a high yield potential crop with a dense canopy, planting a susceptible variety in a field with a history of white mold, and a history of susceptible crops in the rotation. Factors favoring a dense canopy and white mold risk include early planting, narrow row width, high plant populations, and high soil fertility.



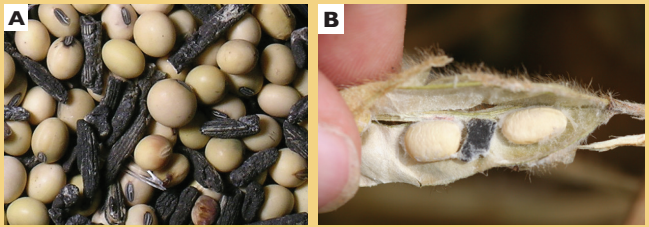
(**A**) Susceptible flowering soybean variety, (**B**) apothecia of *Sclerotinia sclerotiorum* which produce ascospores, (**C**) signs of *S. sclerotiorum* include white tufts of mycelium and sclerotia produced in and outside stem tissue, and (**D**) sclerotia of *S. sclerotiorum* inside a soybean stem.

Scouting

Check near tree lines or other parts of a field that experience less wind disturbance; parts of the field with thick canopies; and fields with a history of white mold. White mold often occurs in patches within fields. Within these patches, look for scattered dead plants.

Yield loss is more severe when plants die prematurely or stems are girdled. In addition to causing yield loss, white mold can impact seed quality and reduce grain price because of foreign material at the elevator if sclerotia are present. After harvest, check seed lots for sclerotia and infected seeds. Infected seeds are usually smaller, lighter, white, and cottony.

Symptoms of white mold include wilting, lodging, and plant death.



(**A**) Sclerotia of *Sclerotinia sclerotiorum* in harvested grain and (**B**) infected seed with a sclerotium in a pod.

Management

Building a management plan based on field history and best disease management practices can help reduce losses due to white mold and minimize sclerotia development for future years. Integrate several management tactics that include varietal resistance, cultural practices, and chemical and biological control products.

Fields at high risk for white mold at flowering stage (R1) may require a fungicide application and possibly a follow-up application at beginning pod stage (R3) in severe epidemic conditions. Some PPO inhibitor herbicides also may be effective at managing white mold.

Choosing resistant soybean varieties is the best method of reducing white mold, especially in conjunction with other best disease management practices. This shows a white mold susceptible variety in front of a resistant variety.

Pesticides currently registered for suppression or control of white mold on soybean.

Product type	Active ingredient	Product name
Fungicide	Thiophanate methyl	Topsin®, Incognito®, others
Fungicide	Boscalid	Endura® and Lance®
Fungicide	Fluazinam	Omega® and Allegro®
Fungicide	Tetraconazole	Domark®
Fungicide	Prothioconazole	Proline®
Fungicide	Picoxystrobin	Aproach™
Fungicide	Fluxapyroxad and Pyraclostrobin	Priaxor®
Fungicide	Penthiopyrad	Vertisan®
Fungicide	Prothioconazole and Trifloxystrobin	Stratego® YLD
Herbicide	Lactofen	Cobra® and Phoenix™
Biocontrol	*Coniothyrium minitans*	Contans® and KONI®
Biocontrol	*Bacillus subtilis*	Serenade®

Note: Check with your local Extension Service or State/Provincial Department of Agriculture to determine whether a product is registered in your state or country for white mold on soybean.