

White Mold of Cabbage

Symptoms

The first symptoms of white mold are most likely to appear on stems and on leaves that are in contact with the ground. Symptoms consist of water soaked lesions that enlarge and develop a characteristic white cottony mycelium (Fig. 1). The mycelia grow and spread to other plant tissue. Root infection may lead to girdling of the stem, and if favorable conditions persist, plants may wilt, topple, and eventually die. On the head, a soft, water-soaked lesion may affect several layers of leaves or the entire head (Fig. 1 and 2).



Figure 1. Profuse white mold present on exterior lower leaves (right side). Photo: Ronald French.

At a late stage of the disease, the mycelia form sclerotia (Fig. 1 and 2). Sclerotia are compact clumps of mycelia, irregular in shape, with a dark cortex and a beige flesh. Sclerotia may form on the surface of the plant or inside soft tissues or cavities (pith of stems, center of the head or under layers of diseased leaves).

Desiccated diseased tissues appear bleached (Fig. 1 and 2) and may shred.



Figure 2. Desiccated cabbage head, appears bleached; abundant sclerotia present. Photo: Ronald French.

Causal Agent

White Mold is caused by the fungus *Sclerotinia sclerotiorum*. This fungus produces sclerotia that can germinate directly or produce apothecia which bears ascospores via asci (sexual reproduction). *Sclerotinia sclerotiorum* produces no asexual spores. Sclerotia can survive in soil for many years. *Sclerotinia sclerotiorum* has a broad host range, including many cultivated crops and innumerable broadleaf weeds.

Inoculum Source and conditions

The main inoculum source is soil infested with sclerotia. Once sclerotia germinate, the mycelia can infect roots, crowns and leaves in contact

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with the soil. Under favorable conditions, sclerotia present on the top layers of soil will produce ascospores, borne from asci in apothecia. These ascospores will most likely initiate a focus of infection in the field they were generated or could be spread long distances by wind. Mechanical or insect wounds and freezing can increase the incidence of white mold. Cool (52 to 75°F), and moist conditions of leaf wetness for 16 to 48 hours can favor infection and growth of mycelia. Once in the plant, if conditions are favorable, the mycelia will spread to neighboring tissues. The pathogen does not produce asexual spores. There are no secondary infection cycles and therefore the disease has only one cycle per cropping season.

Control

- Rotate with no-till non-host crops (corn, wheat, and sorghum) to induce germination of sclerotia and greatly reduce amount of viable sclerotia left in the soil.
- Avoid using susceptible annual legumes as cover crops.
- Control broadleaf weeds.
- Promote air circulation by increasing row spacing.
- Maintain proper nitrogen fertilization.
- Irrigate early in the morning and stop all irrigation by midday. This irrigation cut off allows the foliage to dry (less than 16 hours of leaf wetness) reducing disease incidence.

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