

Snow Mold of Cereals

Pathogen Facts

- The term “snow mold” is a blanket term for any of the several fungal diseases that develop on cereal crops underneath snow.
- The most common snow molds are pink snow mold, Typhula rot (called gray or speckled snow mold), and Sclerotinia snow mold.
- This disease only occurs in areas that receive dense layers of snow prior to soil freezing.



Snow mold symptoms in a field trial. Photo courtesy of Sam Tragesser, Senior Research Associate.

Conditions Favoring Disease

- These fungi perform best at 68 °F (20 °C) but they can infect plants at temperatures as low as 32 °F (0 °C).
- Snow on top of unfrozen soil provides cold, dark, and humid conditions that are favorable for these microorganisms.
- Areas of the field with thicker layers of snow cover are more conducive for infection and will typically show more severe symptoms.
- Early-planted wheat is more likely to become infected due to lush growth which can aid in the transmission of the fungi from plant to plant.
- Once temperatures warm and fields dry out in the spring, disease development will halt.



Identification

Pink Snow Mold

- Caused by the fungal pathogen *Microdochium nivale* (*Fusarium nivale*).
- Pink coloration develops on the leaf surfaces from masses of conidia (asexual spores)
- Mild winters with more moisture are more favorable for this snow mold.

Gray/Speckled Snow Mold

- Caused by the fungus *Typhula incarnata* and *Typhula ishikariensis*
- White to gray mycelial mat with dark colored sclerotia give the characteristic “speckled” appearance on infected tissue.
 - Speckles can range from darker colors to reddish spots
- Needs 100 days of continuous snow cover paired with unfrozen ground.

Sclerotinia Snow Mold

- Caused by the pathogen *Sclerotinia borealis*.
- Very similar in appearance to speckled snow mold but overwintering structures are larger and darker sclerotia.

Management Considerations

- Selecting resistant cultivars and varieties can lessen the severity of infection.
 - No variety is completely resistant.
- Crop rotations away from winter cereals can reduce the build up of inoculum in the growing system
- No-till seeding has proven to be effective at mitigating the severity of disease.

References

- Frank, E., Evans, K., Barnhill, J., & Pace, M. 2008. *Snow Mold on Small Grains*. Retrieved from Utah Pests Fact Sheet: <https://utahpests.usu.edu/upddl/files-ou/factsheet/snow-mold-grain08.pdf>
- McBeath, J. H. 2002. *Snow Mold-Plant-Antagonist Interactions: Survival of the Fittest under the Snow*. Retrieved from American Phytopathological Society: <https://www.apsnet.org/edcenter/apsnetfeatures/Pages/SnowMold.aspx>

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Vol. 12 No. 12 May 2020

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