

Purple Leaf Sheath Lesions and Physoderma Brown Spot in Corn

- There are different causes for purple lesions on corn leaves.
- Purple leaf sheath results in purple lesions around the leaf sheath; however, this non-disease is not a threat to yield potential and should not be treated with fungicide.
- Physoderma brown spot is typically a minor disease that can also cause purple lesions in corn.
- Proper identification is needed to determine if a fungicide could be used in management.

Disease Cycle and Symptoms of Physoderma Brown Spot

Physoderma brown spot, caused by the fungal pathogen *Physoderma maydis* pathogen is typically an infrequent, minor disease, that survives in crop residue and may be common to continuous corn and conservation tillage systems. *P. maydis* is favored when corn fields receive abundant rainfall and when temperatures range between 73 to 90° F.¹ Symptoms of the disease are similar to eyespot and southern rust and may cause alarm if they are severe.⁴

Water held behind the whorl or leaf sheaths creates an environment for the *P. maydis* fungus, which is closely related to other “water-mold” pathogens. The fungus produces sporangium that germinate and release swimming zoospores.¹ The zoospores require light to infect the plant with their hair-like hyphae. Consequently, symptoms may appear as alternating bands on leaves as they extend out of the whorl.

Symptoms appear as small round to oblong lesions that are yellowish to brown in color. Lesions can be on leaves, stalk, sheath, and husks. Neighboring lesions join and tend to darken in color from brown to reddish brown or purple.² Purplish spots along the midrib of infected corn plants are characteristic of the disease.⁴ If leaf lesions consume enough leaf tissue to reduce photosynthesis, plants could cannibalize themselves to feed developing kernels. This can weaken stalks and lead to lodged plants.

Management of Physoderma Brown Spot

Physoderma brown spot management includes reduction of available inoculum with crop rotation. Sporangia can be transported long distances and live for three years in the soil.¹ This disease can also be managed with tillage, shredding of stalks, and planting adapted tolerant-to-resistant products. A labeled fungicide applied at the proper time may be warranted if disease outbreak is severe.

Purple Leaf Sheath

This discoloration of leaf sheath occurs in most corn fields to

some degree and is known as a disorder or non-disease. A collection of moisture, nutrients, pollen, and anthers in the area between the collar and stalk provides an environment for yeasts to survive. Yeasts that commonly live on the corn leaf surface - as well as secondary, saprophytic organisms - thrive on the collected nutrients.³ As a result, purplish blotches appear on corn leaf sheath (Figure 1), but are not considered a threat to production of corn with high yield potential.



Above Photo Courtesy: Clemson University—USDA Cooperative Extension Slide Series, Bugwood.org



Figure 1. Physoderma brown spot in corn (left) is typically a minor disease, but could be developing in fields with abundant moisture and temperatures ranging from 73 and 90° F.¹ Purple Leaf Sheath phenomena (right) resulting from yeast and saprophytic feeding on nutrients trapped between leaf sheath.

Sources: ¹ University of Illinois Extension. 1991. Physoderma brown spot of corn. RPD No. 210. University of Illinois. ² Jackson, T. Physoderma brown spot. Plant disease central. University of Nebraska. <http://pdc.unl.edu> (verified 7/23/14). ³ Allen, T. 2012. Don't sweat the small stuff: disregard those purple to black spots against the corn stalk at the base of the leaf collar. Mississippi Crop Situation. Mississippi State University. <http://www.mississippi-crops.com> (verified 7/22/14). ⁴ Robertson, A. 2008. Unusual foliar diseases showing up in Iowa corn. Iowa State University. www.extension.iastate.edu (verified 7/23/2014).

For additional agronomic information, please contact your local seed representative.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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