

***Physoderma maydis*—Brown Spot and Stalk Rot of Corn**

Physoderma brown spot is not usually considered an economically important disease in the Midwest, but occurrence of the disease has increased over the last decade.

What to Consider

Physoderma brown spot (PBS) and Physoderma stalk rot (PSR) are fungal diseases caused by *Physoderma maydis*. The disease can infect any part of the corn plant; however, leaves are the most common place to find infection. Water held in the whorl or leaf sheaths create an environment favorable for *P. maydis* infection. The fungus overwinters in crop debris and when exposed to moisture and light produces sporangium that germinate and release swimming zoospores.¹

Symptoms may appear as alternating bands on leaves as they extend out of the whorl. Symptoms appear as numerous small (1/4 inch in diameter) yellowish to brown, round to oval lesions that usually occur in broad bands on leaves. Dark purplish to black lesions can also appear on the leaf midrib, stalk, leaf sheath, and ear husk. Neighboring lesions join and tend to darken in color from brown to reddish brown or purple.



Figure 1. Physoderma brown spot lesions. Note darker, larger lesions on the leaf midrib.



Figure 2. Left - PBS leaf lesions appearing in a broad band. Right- Larger, darker, purplish PBS lesions on the leaf sheath. Photos courtesy of Dr. Carl Bradley, University of Kentucky.

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Conditions favoring PBS infection include -

- Wet weather or irrigation keeping water pooling in the whorl of corn
- Warm temperatures (75 to 85 °F)²
- Plants are most susceptible during early vegetative growth (V5 to V9) and become more resistant with age.¹
- *Physoderma* may be more common in continuous corn and conservation tillage systems.



Figure 4. *Physoderma* stalk breakage.
Photo courtesy of Dr. Alison E. Robertson, Iowa State University.

Infection of lower nodes can result in PSR. Infected nodes become weakened over time and snap easily when pushed. Stalk nodes where the breakage occurs are black and rotted around the outer edge or rind area (Figure 4).

Yield Impact

Typically, PBS does not cause loss of yield potential.^{2,3} Most corn products have good tolerance to the disease.² Identification of this disease remains important to avoid unnecessary treatments due to disease misdiagnosis.

Management

Physoderma brown spot management includes—

- Reduction of available inoculum with crop rotation.
- Tillage, crop rotation, and planting adapted tolerant products.

Many fungicides are labeled for PBS; however, more research is needed to determine efficacy and application timing data. Further research at public universities is evaluating effectiveness of fungicide application in preventing stalk breakage due to PSR.

Sources

¹ Robertson, A. 2015. *Physoderma* brown spot and stalk rot. Integrated Crop Management. Iowa State University. <https://crops.extension.iastate.edu>.

² Wise, K., Kennedy, B., Mehl, K., and Bradley, C.A. 2018. *Physoderma* brown spot. University of Kentucky. <https://plantpathology.ca.uky.edu/>

³ Jackson, T. *Physoderma* brown spot. Crop Watch. University of Nebraska-Lincoln. <http://cropwatch.unl.edu/plantdisease/corn/physoderma>
Web sources verified 06/03/18.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** 130819060802. 060218SEK