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# Physoderma Brown Spot and Stalk Rot

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# Physoderma Brown Spot and Stalk Rot

## **Abstract**

Physoderma brown spot and stalk rot is caused by the chytridiomycete *Physoderma maydis*. This is the only class of fungi that produce zoospores - spores that have a flagellum (tail) and swim in free water. *P. maydis* survives as sporangia for 2 to 7 years in soil and crop debris. The sporangia are wind dispersed or splashed into the whorls of developing corn plants. When the whorls fill with water for an extended period of time, due to excessive rains or irrigation, the sporangia germinate and produce zoospores that swim and infect the meristematic tissue of the developing plants. Corn is most susceptible to infection between growth stages V5 to V9.

## **Keywords**

Plant Pathology and Microbiology

## **Disciplines**

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Plant Pathology

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ICM News

July 24, 2015

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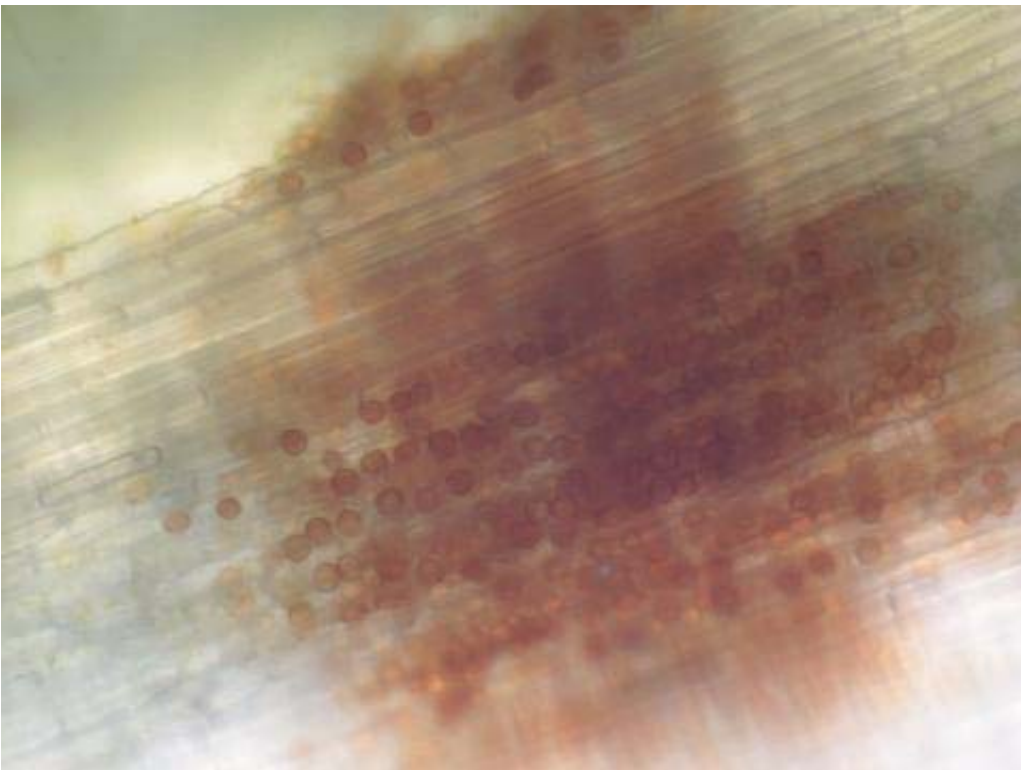
*P. maydis* survives as sporangia for 2 to 7 years in soil and crop debris. The sporangia are wind dispersed or splashed into the whorls of developing corn plants. When the whorls fill with water for an extended period of time, due to excessive rains or irrigation, the sporangia germinate and produce zoospores that swim and infect the meristematic tissue of the developing plants. Corn is most susceptible to infection between growth stages V5 to V9.

Symptoms of Physoderma brown spot are very characteristic. Infected leaves have numerous very small (approximately one-fourth inch diameter) round or oval spots that are yellowish to brown and usually occur in broad bands across the leaf (Fig. 1).



**Figure 1. Symptoms of Physoderma brown spot are very characteristic.**

Dark purplish to black oval spots also occur on the midrib of the leaf, and may also occur on the stalk, leaf sheath and husks. Symptoms may be confused with eyespot, southern rust or purple leaf sheath, so look for the purplish oval spots. These purplish oval spots are filled with thousands of sporangia (Fig. 2).



**Figure 2. These purplish oval spots are filled with thousands of sporangia.**

Infection of nodes 6 and 7 may result in stalk rot. Physoderma stalk rot has been reported in Iowa for the past three years, predominantly in northern Iowa but there have been reports from SW Iowa in 2013 and just this week the disease was reported in Lee County, SE Iowa. Infected nodes are rotted and snap easily when gently pushed (Fig. 3), for example while walking across rows. Brown spot symptoms often are not visible on the leaves of plants affected with stalk rot. In fact, affected plants often look very healthy and have excellent yield potential.



**Figure 3. Infected nodes are rotted and snap easily when gently pushed.**

Some hybrids appear to be more susceptible to infection by *P. maydis* than others. Moreover, the very wet conditions that occurred during June across most of the state likely increased risk of disease. Many fungicides are labeled for Physoderma brown spot management, but there is no publicly available data on application timing. Research is underway to determine how fungicides could be used to manage the disease.

**Category:** Plant Diseases

**Crop:**  
Corn

**Tags:** Corn diseases; Physoderma brown spot; Physoderma stalk rot

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Alison Robertson is an Associate Professor of Plant Pathology and Microbiology. Robertson provides extension education on the diagnosis and management of corn and soybean diseases. Her research interests include Pythium seedling disease of corn and soybean and Goss's wilt. Robertson rec...

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