



# Physoderma Brown Spot of Corn

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## INTRODUCTION

Physoderma brown spot can be a striking foliar disease that is periodically observed in field corn in Kentucky. This publication describes the symptoms and cause of disease, conditions that favor disease development, and options for disease management.

## SYMPTOMS

The characteristic symptom of Physoderma brown spot is the development of round, purple to chocolate-brown spots appearing in or near the mid-rib of the affected leaves (FIGURE 1). These spots can coalesce to form large dark blotches. Tiny, yellow to brown spots can cover leaves (FIGURE 2) or appear in bands across leaf blades (FIGURE 3). Yellow or brown spots may also be observed on leaf sheaths, husks, or stalks (FIGURE 4). Symptoms typically are observed prior to tassel stage.

## CAUSE & DISEASE DEVELOPMENT

Physoderma brown spot is caused by the fungus *Physoderma maydis*. This fungus produces survival structures (sporangia) that overwinter in corn residue and soil. Sporangia are dispersed by wind or water to young corn plants in spring. Infection requires sunlight, warm temperatures (75° to 85°F), and water. The fungus usually initiates infections within the



**FIGURE 1.** DARK BROWN OR PURPLE LESIONS IN THE MID-RIBS OF LEAVES IS A COMMON SYMPTOM OF PHYSODERMA BROWN SPOT. (PHOTO: KIERSTEN WISE, UK)

whorl, leading to the banding pattern of symptoms on leaves (FIGURE 3). The disease is most severe in wet years or in irrigated fields when water remains in



**FIGURE 2**



**FIGURE 3**



**FIGURE 4**

**FIGURE 2.** FOLIAR SYMPTOMS OF PHYSODERMA BROWN SPOT INCLUDE TINY, YELLOW OR BROWN SPOTS ACROSS LEAF BLADES. (PHOTO: KIERSTEN WISE, UK)

**FIGURE 3.** PHYSODERMA SPOTS CAN ALSO APPEAR IN BANDS ON LEAVES. (PHOTO: CARL BRADLEY, UK)

**FIGURE 4.** SYMPTOMS OF PHYSODERMA BROWN SPOT CAN ALSO APPEAR ON LEAF SHEATHS. (PHOTO: CARL BRADLEY, UK)

the leaf whorl for a prolonged period of time. Plants are most susceptible in the early vegetative stages of growth and become more resistant with age. Physoderma brown spot incidence is usually highest in fields with conservation tillage and/or continuous corn. The fungus can also cause a stalk rot, which has been reported in several other states, including Iowa and Indiana, but this phase of the disease has not yet been confirmed in Kentucky.

## DISEASE MANAGEMENT

Physoderma brown spot generally does not result in yield loss; however, some hybrids are more susceptible than others. Resistance ratings for hybrids

may not be available in all areas. Promoting residue decomposition through tillage or other methods and rotating away from corn will reduce the amount of the fungus available to infect future corn plantings. Foliar fungicides that list Physoderma brown spot as a target disease on their labels are available, but efficacy data are currently limited.

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