



Extension FactSheet

Plant Pathology, 2021 Coffey Road, Columbus, Ohio 43210-1087

Spot Blotch and Common Root Rot

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Spot blotch has been found in nearly every wheat-producing county in Ohio, but disease severity levels have been low. Regardless, this disease has the potential to cause serious damage to Ohio's wheat crop when environmental conditions favor disease development. Seed collected from the 2004 Performance Trial site in Wayne County had as high as 10% infection on more susceptible cultivars. Although spot blotch occurs throughout the state, it frequently occurs with *Stagonospora* leaf blotch, which is usually the more serious yield-limiting disease. Spot blotch, in combination with Tan Spot and *Septoria* and *Stagonospora* leaf blotches, causes serious damage to the carbohydrate producing green leaf tissues. Greatest yield losses occur when the flag leaf and the leaf below the flag leaf become infected before head emergence. If these leaves are killed before the soft dough stage, the grain will be lightweight. When infected, untreated seed is planted, plant stand may be diminished by seedling blight and sensitivity to winter injury increased.

Symptoms

Seedling Blight

Death of the seedlings may occur before or soon after emergence from infection by conidia on the

seed (**Figure 1**). The dark brown lesions occur on the coleoptiles, crowns, stems, and roots. Darkening of the subcrown internode is a characteristic symptom. These infections may lead to tiller abortion early in the season and premature death of plants later in the season.

Leaves

At first, lesions appear as black to brown flecks, which expand into oval-shaped black blotches that rarely exceed 1 cm in diameter. Leaf symptoms are most obvious after heading and occur most often on the lower leaves (**Figure 2**). One of the largest problems in determining the presence of spot blotch is the similarity of the early lesions with tan spot and *Stagonospora*

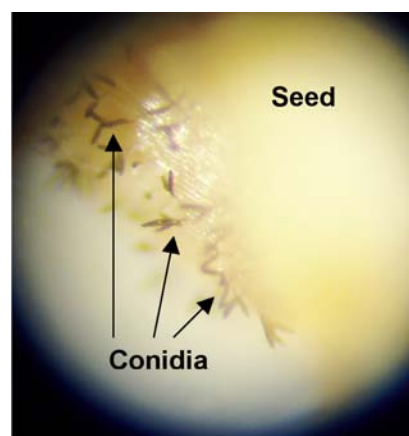


Figure 1. Microscopic picture of *Bipolaris sorokiniana* conidia on the surface of a wheat seed.

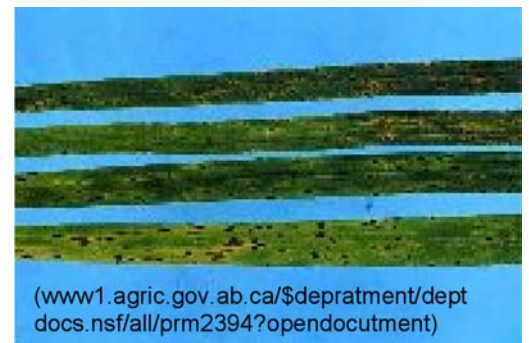


Figure 2. Lesions of *Bipolaris sorokiniana* on wheat leaves.

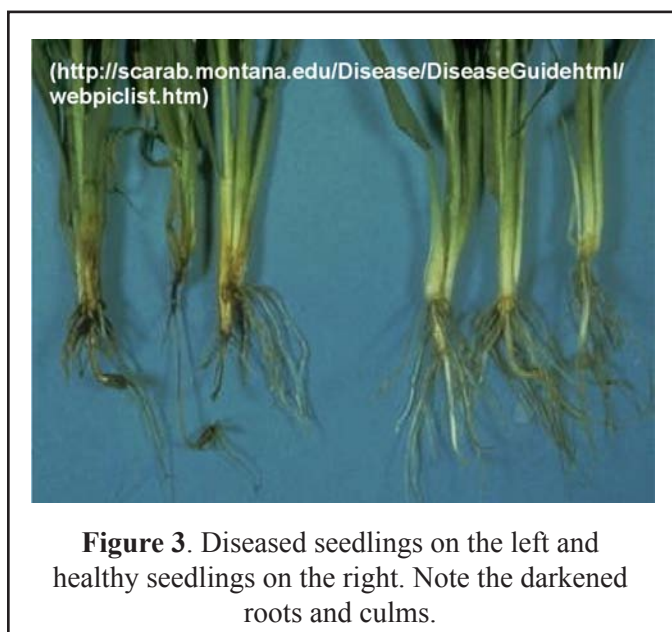


Figure 3. Diseased seedlings on the left and healthy seedlings on the right. Note the darkened roots and culms.

leaf blotch lesions. These diseases have similar yet variable lesions types as the lesions age.

Roots

When diseased plants are examined, stems and the tap root have a brown to black discoloration (**Figure 3**). Infected plants appear yellow and stunted as compared to healthy plants. This disease may be difficult to diagnose because many different pathogens of roots cause brown to black discolorations.

The Fungus Causing Spot Blotch

Bipolaris sorokiniana, (*Cochliobolus sativus*) is the fungus causing spot blotch. This fungus survives on wheat debris on the soil surface, on diseased grass hosts, and in the soil as spores or on infected wheat seed.

Primary infections occur on coleoptiles, subcrown internodes, and primary and secondary roots. Root rotting is tolerated by the plant as long as new roots are generated. Plants stressed by freezing or Hessian

fly injury are more susceptible. Drought and warm temperatures predispose wheat to common root rot. Secondary conidia develop when infections progress above the soil level. The spores are dispersed by wind and initiate lesions on the leaves and stems later in the season. Spot blotch symptoms on leaves are most common at relative humidities near 100% and when the temperature is between 20 and 25 degrees C.

Management

Crop rotations and burying wheat stubble by tillage can reduce the level of disease early in the season. Wheat growers should rotate wheat with soybeans and corn, and wheat should follow soybeans in the rotation sequence. Corn is not a host of spot blotch, but planting wheat into corn residue dramatically increases the risk of *Fusarium* head scab infection. Excess nitrogen encourages the progression of the disease by creating lush vegetative tissue.

Fungicide application focuses on maintaining the flag leaf and head as free from disease as possible. The flag leaf, glumes, and awns contribute greatly to yield and test weight. A healthy flag leaf and head are essential for high-yielding plants.

Several fungicides are available to help manage spot blotch, other fungal leaf spots, and leaf rust. Most fungicides that control *Stagonospora* and *Septoria* leaf blotch also control spot blotch. Fungicides should be applied to prevent disease development on the flag leaf and the leaf below the flag leaf. Initiate applications when lesions begin to develop on the leaf below the flag leaf on susceptible varieties. Seed treatments are effective in eliminating the fungus on seed. The fungicides commonly used to control *Stagonospora* on the seed are effective against *B. sorokiniana* as well. Obtain current seed treatment fungicide application information on the Ohio Field Crop Disease website at <http://www.oardc.ohio-state.edu/ohiofieldcrop-disease>.

Visit Ohio State University Extension's website "Ohioline" at:
<http://ohioline.osu.edu>

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