

Septoria Tritici Blotch

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Septoria tritici blotch, also known as speckled leaf blotch, is caused by the fungus *Septoria tritici*. It is distributed in all wheat-growing areas of the world and is a serious problem in many regions. In Kansas, Septoria tritici blotch is common, but it is most severe in the eastern two-thirds of the state. The disease usually does not cause serious damage in the western third of the state. Septoria tritici blotch is most damaging when the disease attacks the upper leaves and heads of susceptible varieties late in the season.

Symptoms

Septoria tritici blotch symptoms first appear in the fall. The initial symptoms are small yellow spots on the leaves. These lesions often become light tan as they age, and the fungal fruiting bodies can be seen embedded in the lesions on the awns. Lesions are irregularly shaped and range from elliptical to long and narrow (Figure 1). Lesions contain small, round, black speckles that are the fruiting bodies of the fungus (Figure 2). The black fruiting bodies look like grains of black pepper and can usually be seen without the aid of a magnifying glass.

The disease begins on the lower leaves and gradually progresses to the flag leaf. Leaf sheaths are also susceptible to attack. In wet years, the speckled leaf blotch fungus can move onto the heads and cause brown lesions on the glumes and awns known as glume blotch. These lesions often become light tan as they age and the fungal fruiting

Quick Facts

- Symptoms of Septoria tritici blotch (speckled leaf blotch) include elongated tan lesions. The disease can be distinguished from other foliar diseases by the presence of small black fruiting bodies within the lesions.
- Septoria tritici blotch is favored by frequent rainfall, which splashes spores onto the upper leaves and heads where it is most damaging.
- Selecting varieties with moderate to high levels of resistance reduces the risk of yield losses from Septoria tritici blotch.
- Foliar fungicides are an option for controlling Septoria tritici blotch. The most effective fungicide treatments are applied between flag leaf emergence and the beginning of flowering.

bodies are often seen embedded in the lesions on the awns. The glume blotch phase can cause significant yield loss, but the relationship between disease severity and yield loss is not well understood.

Septoria tritici blotch can be confused with other leaf diseases that have very similar symptoms: tan spot and Stagonospora nodorum blotch, for example. It is common for plants to be infected by more than one of these foliar



Figure 1. Symptoms of *Septoria tritici* blotch include light brown lesions. Lesions are often elongated, and may merge, resulting in large sections of dead leaf tissue.



Figure 2. The fungus that causes *Septoria tritici* blotch produces small black fruiting bodies in the affected tissues. These speckles can help distinguish *Septoria tritici* blotch from other leaf diseases.

diseases, and it may require laboratory examination to accurately diagnose which diseases are most prevalent. Laboratory examination is nearly always required to distinguish the cause of glume blotch. Knowing the species is not important for spray decisions because all three diseases respond similarly to fungicides. However, knowing which diseases are most prevalent is an important part of variety selection because different genes control the resistance to the diseases.

The most reliable way to distinguish *Septoria tritici* blotch from the other diseases is by the presence of the black fungal fruiting bodies. The fungus that causes tan spot does not produce this type of reproductive structure. However, under moist conditions, the fungus that causes *Stagonospora nodorum* blotch will produce light brown fruiting bodies. In addition to the color difference, these structures are also smaller than those produced by *Septoria tritici*.

Life Cycle

Septoria tritici survives through the summer on residues of a previous wheat crop and initiates infections in the fall. There is some evidence that the fungus is able to survive in association with other grass hosts and wheat seed. These sources of the fungus are probably most important when the wheat residues are absent. Regardless of rotation or residue management practices, there is usually enough inoculum to initiate fall infections.

Septoria tritici blotch is favored by cool, wet weather. The optimum temperature range is 60 to 70 degrees Fahrenheit; however, infections can occur during the winter months at temperatures as low as 40 degrees Fahrenheit. Infection requires at least 6 hours of leaf wetness, and up to 48 hours of wetness are required for maximum infection. Once infection has occurred, the fungus takes 21 to 28 days to develop the characteristic black fruiting bodies and

produce a new generation of spores. The spores produced in these fruiting bodies are exuded in sticky masses and require rain to splash them onto the upper leaves and heads.

Control

Resistant varieties are the best control for *Septoria tritici* blotch. The most recent resistance ratings are available in *Wheat Variety Disease and Insect Ratings*, MF-991. For example, Jagger, Santa Fe, and Shocker have good resistance to *Septoria tritici* blotch (speckled leaf blotch). Different genes regulate resistance to the leaf and the glume blotch phases of the disease. Resistance to the foliar phase however, is usually sufficient to prevent serious yield losses in Kansas.

Foliar fungicides are also an option for control of *Septoria tritici* blotch. Bumper, Headline, Proline, Propimax, Quilt, Quadris, Stratego, and Tilt are systemic fungicides that provide good activity against this disease. See *Foliar Fungicides Efficacy Ratings for Wheat Disease Management*, EP-130 for additional information on product efficacy. When using a foliar fungicide, it is important to protect the last two leaves. These leaves provide most of the energy needed to produce the grain. Protection of these leaves is best achieved by applying the fungicide between emergence of the flag leaf and the beginning of flowering. Fungicide seed treatments or early applications of foliar fungicides may offer some early season protection from *Septoria tritici* blotch, but will most likely not provide enough protection of the upper canopy during grain fill when the plants are most vulnerable to disease.

Cultural controls including crop rotation or the destruction of residues from previous wheat crops may have a small effect on the severity of *Septoria tritici* blotch, but usually do not give satisfactory control of the disease in Kansas.

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