

### **Stinking smut can be devastating disease for winter wheat varieties**

Stinking smut (also called common bunt) can be a devastating disease of wheat, particularly in winter wheat grown in the Pacific Northwest. It is found infrequently in the High Plains Region.

Infection levels over 20 percent were common in Washington in the early 1900s. Furthermore, between 25-50 percent of the Kansas wheat crop was lost to stinking smut in 1890.

Stinking smut releases dusty spore masses during harvest. Because of this, many “thresher” explosions have occurred. Static electricity that developed around the combine machinery ignited the spore dust released by the combine.

In 1915, 160 such explosions were reported in Washington. One can visualize the panic that must have developed when a “thresher-combine” pulled by a 20-40 horse team caught fire in the middle of a wheat field from such a smut dust-induced explosion.

Today, losses from smut rarely occur unless a grower chooses not to plant treated seed. Stinking smut fungi survive between growing seasons as spores that are time- and weather-resistant (called teliospores). These spores typically rest on the surface of healthy seed or in the soil.

These spores can remain dormant and alive in either location for a number of years, perhaps 10 years or more, particularly if the spores remain dry on the seed surface.

Stinking smut spores germinate and begin to grow when the environment is favorable. Young

## Green and Growing

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smut fungus grow root-like threads (called hyphae) that penetrate into the tissues of young wheat seedlings. As the plant grows, the fungal hyphae also grow inside the wheat plant.

The fungus keeps pace with the wheat plant's growth and development. Eventually, the fungus cells replace the cells of the wheat seed, and as wheat kernels mature, the smut fungus cells become teliospores.

During harvest, the smut spores are released from infected heads as the heads pass through the combine used to harvest the grain. They contaminate other seed being harvested or are spread by the wind to the soil surface.

Cool temperatures (41-59 degrees Fahrenheit) favor the germination of the teliospores. Usually the soil moisture, which favors seed germination, also favors spore germination. Therefore, for winter wheat planted in the fall, infection is favored when the seed is planted later when soil temperatures are cooler. Planting winter wheat early, when the soil temperatures are above 68 F, results in very low fungus infections.

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