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Loose Smut of Wheat

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PLANT DISEASES

Mimeo BP 5-2
Revised



on the farm

Loose Smut of Wheat

Loose smut is the most easily recognized of all wheat diseases. And it is present, to some extent, in nearly every wheat field in the state.

SYMPTOMS AND CAUSE

Loose smut infection is unmistakable, especially at heading time. When normal wheat heads are emerging from the boot, smut-infected heads already contain only a mass of black, dusty spores instead of normal grains. In a few days, these spores are blown away, leaving only the barren spike with a few dusty spores attached. Usually, the entire wheat head is infected, although occasionally, part of it may produce grain.

Loose smut is caused by the fungus Tilletia tritici, which lies dormant inside apparently healthy seed. When the smut-infected seed is planted, the fungus becomes active and grows up inside the developing seedling. Then when the wheat head starts to form, the fungus destroys the normal grains, replacing them with a new crop of black, dusty spore masses. At the time wheat flowers are produced, these spore masses break up, and the spores are scattered by wind, rain and other natural elements.

Any spore that happens to light in the flower of a healthy wheat head germinates immediately. Once the spore sprouts, it grows down through the flower parts and becomes established inside a young, develop-

ing wheat kernel. There it becomes inactive and remains dormant until the seed is planted, and the smut cycle is then repeated.

CONTROL

Since the loose smut fungus is inside the infected wheat kernel, chemical seed treatment is not an effective control. But wheat producers can reduce losses from the disease by following these suggestions:

Use disease-free, certified seed wheat. Cheap seed wheat is usually unsatisfactory, while certified seed generally pays dividends. If you do not use certified wheat, however, make sure the seed originates from fields showing no more than 1 percent smutted plants at heading time.

Use smut-resistant varieties. LaPorte and Redcoat continue to exhibit a high degree of loose smut resistance; Reed and Knox 62 are moderately resistant; while Dual and Monon have little loose smut resistance.

If in doubt, use hot-water treated seed. The only effective seed treatment for loose smut is the "hot-water treatment." Most farmers do not have the necessary facilities to hot-water treat their own seed. However, several large commercial seed wheat producers in the state do. They can custom-treat farmer's seed wheat for loose smut control more effectively than the farmer himself could.

County Extension agents can supply names of local seed producers equipped to properly treat seed wheat for loose smut.

Figure 1. The normal wheat head on the left is in bloom, the stage at which infections occur. The heads on the right show stages of infection. The bare spike at the far right is all that remains at harvest time.



(Courtesy University of Illinois)

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