

rid infected seed of the loose smut fungus.

- Whenever possible, use small grain seed from fields free of smut. Healthy, smut-free seed are the most effective means for controlling loose smut. Although systemic fungicide seed treatments reduce the amount of smut, they are not 100% effective and

cannot replace good clean, healthy seed.

- Use resistant or tolerant smut small grain varieties. There several small grain varieties that are resistant to local races of loose smut. Check with your seed company to determine if there are varieties available for your area.



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Use chemicals **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed.

The pesticide rates in this publication are recommended only if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or canceled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

Trade names are used only to give specific information. The Alabama Cooperative Extension System does not endorse or guarantee any product and does not recommend one product instead of another that might be similar.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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Plant Disease Notes **Loose Smut Of Small Grains**

Loose smut is one of the most common and easily recognized diseases of small grains. Soon after flowering, small grain heads infected with loose smut can be readily observed in the field from several yards away by their characteristic blackened, smut-like spikes. However, loose smut rarely causes much damage to small grain. Losses to this disease rarely exceed 5% in yield reduction.

There two types of loose smut that occur in Alabama—loose smut of barley and wheat, *Ustilago tritici*, and loose smut of barley and oats *Ustilago tritici*. They are host specific. This means that loose smut of barley and wheat attacks barley and wheat only and loose smut of barley and oats is specific to those two crops. Each species contains races that react differently to small grain varieties within those crops.

Symptoms. During flowering, diseased heads or spikes emerge slightly earlier than healthy small grain heads. Affected heads contain black powder-like masses of spores covered by a thin membrane that completely replace developing kernels of grain. Large clouds of black dust can often be seen arising from combines during the harvest operation. These clouds are actually billions of small loose smut spores that are released into the air as a result of the thin membrane cover

being ruptured during the combine operation. Once the spores have been released, all that remains of the head is bare spike.

Persistence and Spread. Masses of smut spores are produced in spikelets of infected wheat plants 1 or 2 weeks prior to small grain flowering. Smut spores are blown by wind to nearby healthy flowers of small grains where they infect the flower and move into the developing embryo. After the smut fungus invades the embryo, it remains dormant until the smut-infected grain is planted the following season. When the infected seed germinates, the smut fungus becomes active and develops within the growing tissue of the plant as it develops. At flowering, the smut fungus produces masses of spores in the spikelets in place of normal kernels of grain. These spores are released and infect the flowers of other small grains.

Control. Loose smut of small grains is best controlled by using the following strategies:

- Treat seed with systemic fungicides such as carboxin (Vitavax). Since the loose smut fungus is inside the infected seed, conventional, contact fungicides are not effective against this disease. Before systemic fungicides, a hot water seed treatment was used to

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