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# Sorghum Smut Control by Seed Treatment

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SORGHUM SMUT CONTROL  
by  
SEED TREATMENT

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# SORGHUM SMUT CONTROL BY SEED TREATMENT

W. F. Buchholtz\*

## Potential 1942 Loss from Sorghum Smut

Sorghum smut is the black sooty degeneration of all the kernels of the sorghum ear. The ear is lost for feed in grain sorghum and smutted ears in forage result in lowered nutritive value and palatability of the fodder. It is estimated that 5 to 10 percent of the sorghum grown in South Dakota each year is destroyed by smut. In 1942, South Dakota farmers will probably plant nearly 2,000,000 acres of sorghum, probably harvest nearly 500,000 acres for grain. The grain loss from smut will probably fall between 250,000 and 500,000 bushels and the total loss at least a million bushels of feed.

This loss is entirely and easily preventable. Treatment of every seed of sorghum planted in South Dakota in 1942 with a suitable seed disinfectant would reduce this loss to practically nil. Each pound of copper carbonate applied to sorghum seed can prevent the destruction by smut of at least 50 bushels of sorghum feed.

## How Sorghum Smut Develops

The dark smut spore masses replacing the normal kernels in the sorghum ear are first covered by a white or gray membrane. This membrane may break upon prolonged standing in the field or shock and is forcibly destroyed in threshing or combining grain or seed. Some of the freed black spores adhere to normal seed, where they remain dormant with the dormant seed. Germination of the seed and the smut spores occur simultaneously in the soil. Infection of the seedling by the smut quickly follows and the smut fungus lives throughout the season, inconspicuously within the entire sorghum plant until the development of the ear, where the individual kernels are replaced by the smut spore mass, covered by a white or gray membrane.

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\* Plant Pathologist, South Dakota Agricultural Experiment Station.

## Control by Seed Treatment

The obvious control is the killing of the smut spores adhering to the normal seed, which is the role of a seed disinfectant. Those useful for sorghum smut are:

(1) Copper carbonate, 3 oz. of dust per bushel. This is the old seed treatment for bunt or stinking smut of wheat. Thorough agitation of the seed and dust is necessary to insure adequate seed coverage. Seed treated with copper carbonate can be safely stored and a slight excess of dust is not harmful.

(2) New Improved Ceresan, 1/2 oz. per bushel. This is the most common small grain seed treatment, and can be used satisfactorily for sorghum. More than 1/2 oz. per bushel may result in seed injury. Mix seed and dust together thoroughly and allow to stand in bin, pile, wagon box or sacks at least 24 hours before seeding, uncovered. Treated grain is then ready to be seeded or stored. To avoid seed injury, do not store in large piles longer than necessary, 6 weeks at the most.

(3) New Improved Somesan Jr., 2 oz. per bushel. This is a common corn seed treatment which can be used satisfactorily if on hand. The same general directions and precautions apply as for treatment 2.

Certain South Dakota seed companies are offering treated sorghum seed for sale. If treatment is with one of the recommended materials and the necessary precautions taken, then the purchase of treated seed is obviously a means of attaining freedom from smut in the sorghum crop.

Sometimes seed treatment protects the germinating seeds from decay and results in more uniform stands of healthier, more vigorous plants than would develop from untreated seed. Increased yields, therefore, may result from seed treatment even in the absence of smut.

### Warning

The seed treatments listed in this pamphlet are poisonous and every possible measure should be taken to prevent injury to laborers working with them, according to precautions on containers. Use a mask. Work in moving air so as to allow the dust to be blown away from the worker. If toxic effects are in evidence, follow the instructions on the container. Be sensible; call a doctor. Immediate extremely serious effects are unlikely; all exposure should be avoided.

Do not feed excess treated seed to livestock.