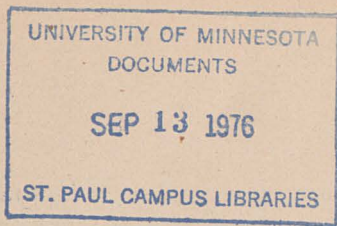


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Experiment Station.

St. Anthony Park, Minn.

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DEPARTMENT OF AGRICULTURE.

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DIVISION OF AGRICULTURE.

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SMUT IN OATS AND WHEAT.

W. M. HAYS AND A. BOSS.

Smut in oats is doing more damage than most farmers realize. Prof. R. A. Moore of the Wisconsin Experiment Station visited many counties in that state in 1901 and by actual count found that an average of 20 per cent of the oat plants were affected by smut, reducing the yield by that amount. The smutted plants are smaller, do not mature

early and are often unobserved. Consequently, most farmers are not aware that this plant disease is so seriously injuring their crops.

*Cause of Smut:* Oat smut is propagated by the smut spores which live over winter on the seed grain, not in the soil, and attack the sprouting oat plant. When the oat plant begins to ripen, its panicle is poorly developed, black in color, and its seeds are masses of smut spores instead of sound kernels of oats.

*Formaldehyde Kills Oat Smut:* Prof. Moore, after experimenting with solutions varying in strength and leaving the oats in the solution different lengths of time, recommends practically as follows:

To 50 gallons of water add one pound of formaldehyde, sometimes called formaline, a disinfectant sold by druggists in a forty per cent solution of water. Place the solution of formaldehyde and water in large barrels. Place about two bushels of the seed oats in each large loosely woven gunny sack. Submerge the sacks of grain for twenty minutes in the solution, lift and drain for a few minutes and empty on the barn floor or on a canvas to dry. Treat a few days before seeding, and by shoveling the grain over a few times facilitate drying and avoid heating. The treated oats can be sown with a force feed drill or seeder when quite damp, but the machine should be set to sow about a peck more than if sowing dry seed. The wetting of the oats causes them to sprout a few days earlier and the formaldehyde does not injure the germinating power of the seeds.

*Treatment Pays:* This treatment is thoroughly effective, costs a cent or less per bushel for formaldehyde, and the labor is not a serious expense. The Minnesota Experiment Station in 1901 treated some hundreds of bushels of seed oats by the formaldehyde method, dried it and sold it for seed, with very satisfactory results. Fifty bushels of that seed oats treated a year ago is still in our bins, and a recent test shows that its germinating power is unimpaired. Farmers should make it a practice to treat seed oats once in three or four years, thus keeping the stock of seed free from smut.

*Formaldehyde for Wheat Smut:* The same method as above outlined will kill stinking smut in wheat. Here the absence of hulls, which in oats protect some spores, makes it practicable to use an easier method of treatment. Spread the wheat six inches deep on the barn floor, or in a wagon box. Sprinkle on the mass sufficient of the solution, of one pound of formaldehyde in fifty gallons of water, to merely wet the surface of every kernel of wheat. Shovel the wheat over a few times while sprinkling on the water to insure that every portion of every kernel is covered by a film of the solution. Occasional stirring is necessary for rapid drying and to prevent heating or germination before sowing. The grain should not be sacked unless thoroughly dried. It is best, when treating only enough seed for home use, to apply the liquid two or three days previous to sowing the grain. It will be necessary to open the drill a little wider in sowing than if the wheat were untreated. Persons who are making a business of growing seed grain for sale will find it advantageous to treat each year all oats or wheat which are to be planted to grow seeds for use or sale the next year.

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