

UNIVERSITY OF ILLINOIS
Agricultural Experiment Station.

E. DAVENPORT, DIRECTOR.

URBANA, ILL., MARCH 14, 1900.

TREATMENT OF OATS FOR SMUT.

Extensive investigations made by the Station show that the per cent of smut in the oat crop of the state ranges from five per cent to forty-seven per cent, with an average not far from ten per cent, which indicates, according to the most conservative estimates, that the annual loss to the oat crop of Illinois from smut is not less than \$1,500,000.

The loss from smut is generally underestimated because, first, the smut of the affected heads is whipped off by the wind just before the time of oat harvest, leaving a bare stalk; second, the smutted heads are frequently so dwarfed from the effects of the smut that they do not come out of the sheath; third, the stalks bearing the smutted heads are somewhat shorter than the unaffected stalks and are not noticed; and fourth, the smutted heads are often attributed to blight or some other disease.

This loss can be entirely prevented at a very slight expense by "the hot water treatment," that is by dipping the seed oats for *five minutes* in hot water at a temperature of from 130° – 137° F.

METHOD OF TREATING.

Apparatus conveniently arranged for treating seed by hot water is shown in the illustration on the last page. The apparatus needed for this work consists of an ordinary scalding kettle, two barrels, several gunny sacks and an *accurate* thermometer.

A kettle holding from 35 to 60 gallons of water should be filled two-thirds full and the temperature of the water raised between 132° and 137° F. One barrel should contain warm water and the other cold water. The gunny sacks should be large enough to hold from one to one and one-half bushels of the seed oats which

can then be dipped into the hot water. In the winter during the cold weather it is convenient to dip the oats into the barrel of warm water before treating to take off the chill and assist in keeping the temperature of the hot water between 132° and 137° F. To assist in manipulating the sack of oats a sweep arranged as shown in cut can be used to advantage. After treating for five minutes in the hot water at the required temperature dip at once into the barrel of cold water in order to cool the oats. Sow immediately by hand without attempting to dry.

PRECAUTIONS TO BE OBSERVED IN TREATING OATS.

An ordinary Fahrenheit thermometer to be had at any drug store costing from ten to fifty cents can be used, but it should register as high as 150° F., and should be known to be correct at the point, 135°. Should there be difficulty in securing thermometers known to be correct at this point they may be had for twenty-five cents each by addressing A. D. Shamel, University of Illinois, Urbana.

The water should not be allowed to fall below 130° or the smut will not be completely destroyed, nor should it rise above 145° as the vitality of the seed is likely to be injured.

After dipping in the hot water the oats should be immediately dipped into the cold water to prevent over heating in the center of the sack.

Care should be taken to sow a sufficient amount of seed per acre. The oats being wet and swollen there is danger that too little seed will be sown.

Owing to the fact that there is very little drying weather at the seeding time of the year, it is practically impossible to dry the oats, and it is necessary to sow by hand as there is no seeder that will sow wet oats successfully. During the winter by taking considerable pains the farmer can treat the seed and dry it, but this has not been found practicable by those having the most experience.

It has been found that the simple treating of the oats by the hot water quickens germination and makes a more vigorous plant, thus increasing the yield independent of the destruction of smut.

COST OF TREATING.

The cost of treating is next to nothing, not exceeding 10-12 cents per acre, but there is no drill or seeder which will handle the wet oats. However, it is not necessary to treat the seed every year in order to keep the oats free from smut. Treatment once every third year will practically prevent all loss from smut. Or good seed may be secured by growing it on a plat apart from the general crop. The seed for this plat should be treated yearly.



TREATING OATS FOR SMUT.