

Michigan Agricultural College

EXPERIMENT STATION.

PRESS BULLETIN NO. 12

Treatments of Seed Wheat to Prevent Smut.

The unusual prevalence of smut in the wheat crop of 1898 calls for extraordinary effort on the part of Michigan wheat growers to prevent a repetition of the loss from this source next year. It is now well known that smut is a disease carried forward from one year to another in the seed wheat. The disease converts the kernel into a black, ill-smelling mass of spores which, when the smutty kernels are broken up by the threshing machine or by handling, attach themselves to the sound kernels. When wheat so infected is sown, the kernels and these spores of smut germinate at the same time. The smut plant grows inside the wheat stem throughout the season, and when the crop is ripening it turns the kernels in the head of wheat into the well-known smut kernels. The spread of the disease may best be prevented by treating the seed wheat. The remedies are neither expensive nor laborious in application.

Treatment No. 1, Formalin.

Buy at a reliable drug store a pound of formalin. It should cost you not far from sixty cents. Mix with 50 gallons of water. Put the seed wheat in a pile on a floor which has been swept clean and sprinkled with the same solution of formalin. Spray or sprinkle the wheat with the formalin solution, shoveling the pile over meanwhile until all the surface of every kernel is wet. Do not use an excess of the liquid or it will hinder germination. Leave in a pile for 24 hours and sow at once or dry and sow later. The bags and other utensils with which the seed wheat comes in contact should also be treated.

Treatment No. 2.

Substitute one pound of corrosive sublimate for the formalin in the above remedy and treat the wheat otherwise exactly as explained above. Remember that corrosive sublimate is a deadly poison and neither the solution itself nor the treated wheat should be left where stock can possibly gain access to it. The corrosive sublimate is rather hard to dissolve and the solution should be prepared by dissolving the pound of the drug in three or four gallons of hot water and adding later a sufficient quantity to bring the total amount up to the required 50 gallons.

Treatment No. 3, Blue Vitriol.

Dissolve one pound of blue vitriol in four gallons of water and spray the wheat as in the treatments above. The four gallons should wet thirteen bushels of wheat. This method is as good as neither of the preceding since copper sulphate, or blue vitriol, as it is variously called, injures the germination of the wheat.

Treatment No. 4, Hot Water.

Soak the seed wheat for ten minutes in water at 133 degrees F. Use a tested thermometer only. Provide two vessels large enough to hold twenty gallons each, if possible. One should contain warm water at about 120 degrees F., the other scalding water at 133°. Into the first vessel plunge the seed wheat in a burlaps sack or wire basket. Keep it there until warm, then plunge into the second vessel, lifting it out occasionally and shifting it about in the scalding water until every kernel has been exposed to the temperature. Remove from the second vessel, at the end of ten minutes, and cool immediately, either by spreading on a clean floor in a thin layer or plunging into a barrel of cold water. Dry and sow, or sow broadcast at once.

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