PUBLICATION 490
CIRCULAR 94

ISSUED MARCH, 1936
FIRST PRINTING

DOMINION OF CANADA, DEPARTMENT OF AGRICULTURE

THE PRODUCTION OF SMUT-FREE SEED

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Published by authority of the Hon. JAMES G. GARDINER, Minister of Agriculture
Ottawa, Canada

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Many of the best varieties of wheat, oats, and barley are susceptible to smut, and until they can be replaced by suitable smut-resistant varieties, careful and regular seed treatment offers the only method of controlling this disease.

Freedom from seed-borne diseases such as smut is usually considered to be one of the important characteristics of registered and certified seed, and purchasers of this seed, relying upon its quality, frequently sow it without treatment. Yet, even seed of the highest quality, showing a trace of smut, may produce a smutty crop if sown under conditions favourable for smut infection. It is particularly important, therefore, that all registered and certified seed should be free from smut. Elimination of smut from such seed would prevent the spread of this disease with new varieties, and would help to improve both yield and quality in the commercial crop.

The treatment of wheat, oats, and barley has been greatly simplified by the recent introduction of organic mercury dusts such as New Improved Ceresan. This dust, when applied to the seed at the rate of ½ oz. per bushel, effectively controls the smuts of oats, covered smut of barley, and bunt of wheat. It also improves seed germination. Tests are being made of other organic mercury dusts now being sold in Canada.

Wheat may be treated with copper carbonate dust (2 oz. per bushel) for the control of bunt, but this dust should not be used for grains such as oats and barley which have a coarse hull.

Copper sulphate, commonly known as bluestone, may cause severe seed injury, and should not be used for treating grain.

Formalin solution (1 lb. of formalin to 30 gals. of water) has long been used as a treatment for the smuts of oats, covered smut of barley, and bunt of wheat. This treatment, if well done, is effective, but it is likely to impair the germination of the seed, particularly of wheat, and reduce the yield.

Seed which is old, weathered, sprouted, frozen, hulled, or broken, or seed which has been shrivelled by rust or drought, should be treated with a dust such as New Improved Ceresan rather than with formalin.

The loose smuts of wheat and barley are not affected by the ordinary treatments with formalin or dusts, but can be controlled by the hot water treatment. Briefly the method of treatment is as follows: Place the grain in loosely woven sacks, half a bushel or less to each sack, and tie the sacks at the top so as to leave plenty of room for the grain to swell. Soak for four hours in water at room temperature; dip for two minutes in water at a temperature of about 120° F.; and then place for ten minutes in the hot water bath (129° F. for wheat and 128° F. for barley). Spread out the grain to dry, and seed as soon as it will run through the drill. Careful removal of smutty heads from the seed plot, as they appear, will also help to control this disease.

Further information about seed treatments may be obtained by writing to the Dominion Rust Research Laboratory, Winnipeg, Manitoba.

Ottawa: Printed by J. O. Patenaude, I.S.O., Printer to the King's Most Excellent Majesty, 1936.