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**CONTROL OF WHEAT SMUT IN WASHINGTON**

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Leonard Hegnauer<sup>1</sup>, F. D. Heald<sup>2</sup>, E. F. Gaines<sup>3</sup>, and C. S. Holton<sup>4</sup>

Forty-three per cent of the cars of wheat received from the state of Washington at terminal markets in 1932 graded smutty. Smutty wheat is of an inferior grade and is subject to a dockage of several cents a bushel, depending upon the degree of smuttiness. On this basis it is estimated that the loss from dockage on smutty wheat in 1932 was a little more than half a million dollars. In the future severe losses can be greatly reduced by taking certain precautions against growing smutty crops. Under the present plan to curtail total wheat production it seems especially desirable to control smut so as to improve the market grade and thereby increase the income to be derived from a reduced acreage.

Smut in wheat may be the result of planting smutty seed or planting seed in summer fallow that is contaminated with smut spores. Smut that results from planting smutty wheat can be completely eliminated by properly treating the seed. Smut that results from soil contamination can be greatly reduced by early planting but it cannot be satisfactorily controlled by seed treatment. It may not be possible to completely eliminate smut from winter wheat because of soil infestation, but it can be reduced to a minimum by following the recommendations outlined in this circular.

Wind blown spores seldom live through the winter in the soil. Therefore, smut in spring wheat can usually be entirely eliminated by seed treatment.

**Recommendations**

1. Use clean seed. Seed that is visibly free from smut is clean. If it is necessary to use seed containing visible traces of smut and smut balls, it should be thoroughly cleaned so as to remove all smut balls.

2. Treat the seed with copper carbonate dust, using two ounces of the 50 per cent grade or three ounces of the 18 to 20 per cent grade for each bushel of grain. The copper carbonate should be applied with a good com-

<sup>1</sup> Extension Agronomist.<sup>2</sup> Head, department of plant pathology.<sup>3</sup> Professor of genetics in agronomy.<sup>4</sup> Agent, U. S. Department of Agriculture

mercial treating machine, or with a home-made mixer, and the application should be sufficiently thorough to cover each and every kernel with a coat of the dust.

Seed of resistant varieties should be treated as carefully as seed of susceptible varieties. This tends to prevent the development and accumulation of new strains of smut that may attack the resistant varieties.

3. Crops grown from seed planted as early as the first ten days in September, usually have a very small amount of smut due to soil contamination. Seed planted the first half of October produces the greatest amount of smut due to soil contamination. Therefore, seeding should be done early, if moisture conditions permit. The practice of plowing summer fallow early in the spring and keeping the weeds down during the summer, tends to conserve soil moisture which permits early planting, thereby reducing the amount of smut.

4. Grow smut-resistant varieties when practical. Winter wheat is usually smuttier than spring wheat. Redit is the most resistant winter wheat, and it is followed in order of resistance by Albit and Turkey. The most susceptible winter wheat varieties are Hybrid 128, Triplet, and Forty-fold. Of the spring wheats, the most resistant is Marquis and the more susceptible ones are Baart, Federation, Jenkin, and Pacific Bluestem.

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