SMUT STUDIES PRELIMINARY TO WHEAT BREEDING
FOR RESISTANCE TO BUNT

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Heavy losses occur annually in the wheat crop of the Rocky Mountain states due to stinking smut. This loss occurs both in reduced acre yields and in price. In 1925, 30% of the wheat crop in the vicinity of northern Utah and southern Idaho graded smutty. Much of this loss can be prevented by proper seed treatment, but that is expensive and in the past has not been too successful. In view of this fact, it seems evident that a more certain means of control is necessary. The most promising possibility appears to be through the development of resistant varieties.

EXPERIMENTAL

In the fall of 1925 the Utah Agricultural Experiment Station began extensive experiments with the view of attempting to solve the smut problem by the production of resistant strains.

The first problem was that of securing resistant stock which might be used in crosses. This problem was partly solved by the extensive smut resistant tests made by the U. S. Department of Agriculture cooperating with the California, Oregon, and Washington Agricultural Experiment Stations. Out of this test came a few varieties highly resistant to stinking smut, none of which, however, are grown in Utah. Those proving most resistant were secured from the U. S. Department of Agriculture Office of Cereal Crops and Diseases and from the Washington Agricultural Experiment Station.

In addition, smut tests were made of a number of the leading varieties grown as winter wheat in this region, as well as a large number of both winter and spring strains of pure line and hybrid origin produced at the Utah Agricultural Experiment Station.

DRY-FARM TESTS

About 35 strains were used in the fall dry-farm tests. The experiment was planned to test the relative resistance of the various varieties and strains to stinking smut, Tilletia tritici (Bjerh.) Wint, and in addition to test or demonstrate the use of copper carbonate as a seed treatment for the control of bunt.

6.55

Published July, 1927