

many farms. The total wheat area was 963 acres. The average yield, due to stem rust, was 8.1 bushels. The average estimate of yield, had there been no black stem rust, was 21.4 bushels. The average crop this year was then 37 per cent of what it would have been without the black stem rust. The total loss in yield was 12,520 bushels, or an average loss of 696 bushels. At a dollar a bushel, each farmer lost \$696 worth of wheat."

The combined money loss was \$12,520. I might say in this connection a thing which I have been willing to say before. We feel that we have in the evidence in Indiana, proof that where we take out the barberry we have no more trouble with stem rust. That has been proved for the years that the campaign has been continued. *We have any number of cases where there was formerly serious stem rust traceable to the barberries which have now been removed, with the result that no signs of rust appeared this year.* (Italics are mine).

In addition, this laboratory devotes most of its time to technical investigations of black stem rust, principally from the standpoint of immunity and resistance of varieties of grain placed at their disposal by authorities of many countries, and including several quite promising new crosses or selections from American institutions.

#### TEST OF RUST RESISTANT VARIETIES

A number of new varieties of wheat produced at the Minnesota Agricultural College, were tested for rust resistance. These varieties were generously furnished by Professor Hayes. As will be seen from the table, they included seven Marquis x Kanred crosses, five crosses of Marquis and Iumillo, and a neutral cross and two selections of Kota. These were seeded in single rows 16 feet long, at the Dominion Experimental Farms at Brandon and Morden in Manitoba, and at Indian Head and Rosthern in Saskatchewan, through the co-operation of the Superintendents, also at Winnipeg and Saskatoon, through the co-operation of the Agricultural Colleges. The Dominion laboratory at Winnipeg co-operated in this experiment by seeding and harvesting the rows at Winnipeg. The seeding was done late so as to expose the rows to as severe rust conditions as possible. Two rows of Marquis were seeded for comparison. Rust was very severe at all the Stations in Manitoba, and moderately severe at Indian Head, Saskatoon and Rosthern. All the rows were examined when ready for harvesting, by the pathologists in charge at Saskatoon, Morden, Winnipeg, and Brandon.

An estimate of the percentage of rust present was made and the results are given in Table No. 1.

I may here point out that it is well known that if you sow your wheat late you run a severe risk from rust. If wheat is sown early it will, under normal conditions, mature early and in consequence may escape rust infection altogether. For our purpose we sow the wheat late, so as to enable us to determine accurately the relative resistance of various varieties to rust.