2. CONTROLLING THE QUALITY OF WHEAT THROUGH
   ROTATION AND PROPER CROP SEQUENCE
   R. I. Throckmorton

The effect of cropping systems on the quality of wheat has been studied as a part of the soil fertility work at the Kansas Experiment Station. The first results from the project were secured in 1911; but since several years were required to get the rotations established, it was not until 1916 that wheat was harvested from plots that had previously grown all of the crops represented in the various systems of cropping. This condition did not occur again until 1919. Since then results have been secured each year from all systems.

CROPPING SYSTEMS

The first cropping system, known as the 16-year rotation, consists of four years of alfalfa, one year of corn, and two years of wheat; the two years of wheat and one year of corn alternating for 12 years. The second system is the same as the first, but an application of 5 tons of manure per acre is made every third year. The third cropping system is the same as the second, except that brome grass is substituted for alfalfa. A fourth system, known as the three-year rotation, consists of corn, cowpeas for hay, and wheat. The fifth is two years of corn and one of wheat. The sixth method is continuous wheat production. Data contained in this paper from systems one, four, and six are the averages from four plots under each treatment, while that for the other three are each from one plot.

EXPERIMENTAL RESULTS

The quality factors to be considered in this paper are the weight of wheat per bushel and the protein content of the grain. Protein percentages are expressed on the basis of 12.5% of moisture in the grain.

YIELDS

In studying the factors that influence the quality of a crop the effect on the yield should not be overlooked. Table 1 shows that the average yield of wheat has been the highest, 25.1 bushels per acre, in the rotation of brome grass, corn, and wheat where manure was used. The second highest yield, 21.4 bushels per acre, was secured from the alfalfa, corn, wheat rotation where manure was used. The relatively

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