THE EFFECT OF FERTILIZERS ON YIELD AND MARKET CONDITION OF CORN.

W. B. ElleTT AND T. K. Wolfe.

In the application of fertilizers to the soil the primary object is usually to increase the yield of the crops. However, in some instances the fertilizers applied noticeably affect the crops in other ways than in increasing yield. These effects are usually classed as secondary; but they very often play an important role in crop production. It has been shown that certain plant nutrients decrease the winter-killing and Hessian fly injury to wheat. In the case of corn some fertilizers hasten maturity, increase the percentage of marketable grain, and the proportion of grain to cob.

The data presented in this paper were secured from a four year rotation experiment, from a continuous cropping experiment with corn, and from a green manuring experiment. Various fertilizers have been applied as shown in the tables. The soil on which the experiments were conducted is a Hagerstown silt loam. The acid phosphate used was the commercial goods guaranteed to contain 16 percent available phosphoric acid. However, analyses were made each year of all commercial fertilizers used.

The rotation experiment was begun in 1909 and consisted of corn, wheat, and clover and grasses two years. Each year all four crops were grown. The materials were applied annually unless otherwise stated. The data secured from this experiment are presented in Table 1.

It is shown in Table 1 that phosphates and manure have increased the yield of grain. In case of commercial fertilizers lacking phos-