THE EFFECTS OF FERTILIZERS ON THE YIELD AND THE
EAR CHARACTERS OF CORN

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In recent years, a considerable amount of work has been done in studying the relation between ear characters of corn and yield. The bulk of the data indicates that there is little, if any, relation between most of the ear characters and yield. Since fertilizers often have a marked effect on yield of corn, it may be worth while to determine the effect of fertilizers on the ear characters as well as on the yield. In this paper, data are presented which show the effects of certain fertilizers on yield and on ear characters of corn.

EXPERIMENTAL WORK

The data presented in this paper were secured during the years 1922 and 1923, from a 4-year rotation experiment of corn, wheat, grass and clover two years, which has been conducted since 1909. The soil was Hagerstown silt loam and the fertilizers, as shown in Table 1, were applied annually.

The Silver King variety of corn was used and 200 ears were selected at random from each treatment. The method used in securing some of the ear characters may need explanation. The characters, with exception of yield of shelled corn per acre, were determined for each ear and the results as given in Table 1 are averages for the 200 ears. The yield of shelled corn per acre was secured by weighing the grain from the entire plat for each of the treatments. Each of the plats were \( \frac{1}{4} \) of an acre in size. The percentage of grain was calculated by dividing the weight of shelled corn by the weight of grain and cob. The average circumferences of the ear and the cob were obtained by averaging the butt and the tip circumferences. The taper factor, which denotes the cylindricity of the ear or the tendency of the ear to taper, was obtained by dividing the tip circumference of the ear by the butt circumference. The nearer the factor approaches unity the more cylindrical is the ear.

The average length of kernel was found by subtracting the average circumference of the cob (b) from the average circumference of the ear (a) and then using the formula \( a-b = 2 \pi r \). In the equation, \( r \) is the length of the kernel.

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