THE EFFECT OF NARROW ALLEYS ON SMALL GRAIN YIELDS

C. K. McClelland

It has long been proved that the outer drill rows bordering on unplanted alleys will yield more than the inner drill rows. The effect on the plat yield is dependent on a number of factors including size and shape of plat and the width or area of the dividing strip, and the management of this whether it be in sod, in crop, cultivated, or simply unplanted.

Barber showed the percentage of total area in a 6-inch border in different sizes and shapes of plats. He stated that on square plats 1/30 acre in area, the yields are about 106.7% of the true yield; on 1/100 acre plats, 100% of the true yield; and on 1/1000 acre plats, the yield will be 128% of the true yield because of the higher yields of border plants. These percentages would be higher in long narrow plats where the percentage in border increases rapidly.

Amy and Hayes studied the subject of alley effect under three heads, viz., (a) How far within plats is alley effect operative? (b) What is the increase in yield due to alley effect? and (c) In plats surrounded by alleys, is the effect of the additional space the same on all varieties?

They show that with 18-inch alleys, when outside border rows only are considered, the yields of wheat, oats, and barley are excessively high and that even the second or inside border rows give yields higher than those obtained from the 13 central rows.

They found that cereals, particularly oats and barley, grown on the outer rows of the plat were later and heavier than from central rows and from their results they conclude that border effect is felt at least 12 inches from the alleys. Tables are presented similar to those of Barber but giving percentages of total area of a 12-inch border in different sizes and shapes of plats. The borders at sides of plats are considered as well as for sides and ends combined. They also show how the ranking of varieties is different when the border rows have been eliminated, due to the fact that the alleys have affected their various yields unequally. They conclude that the removal of two border rows is necessary to eliminate border effect and competition.

1Contribution from the Agronomy Department, University of Arkansas, Fayetteville, Ark. Published by consent of the Director as Research Paper 129, Journal Series, University of Arkansas. Received for publication January 21, 1929.

2Assistant Agronomist.
