A MODIFICATION OF DELWICHE'S SYSTEM OF LAYING OUT CEREAL VARIETY TEST PLATS

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Variety test plats of cereals are usually separated by cultivated alleys. Such alleys not only require varying amounts of cultivation to keep them free of weeds, but are also, as would be expected due to the greater amounts of moisture and nutrients available to the plants of the outside drill rows of the plats, the cause of a considerable border effect. This is true especially in places where the availability of moisture is the main limiting factor to crop production, such as is the case in semi-arid sections or even during dry seasons in humid sections. Yet it is convenient to have variety test plats definitely delineated. Where cultivated alleys are used, two outside drill rows on either side of the plats may be cut out previous to harvest in order to eliminate or at least to reduce the disturbing border effect. This requires, however, a great amount of hand labor. Due to the cost involved, the border rows of plats are frequently not removed. As a result, the yields reported from such tests are higher than would be obtained under comparable field conditions. Since the plant breeder is, in most instances, concerned more with the comparative yielding abilities of the strains tested than with their actual field yields, this in itself would not constitute a great source of error were it not for the fact that different strains may react quite differently to the influence of the cultivated border.

Previous to 1930 variety test plats at the South Dakota Agricultural Experiment Station were separated by cultivated alleys. Border effects, especially in dry seasons, were very pronounced. In extreme drought years at the Highmore sub-station the only grain produced was found along the cultivated alleys. In the spring of 1930, a modification of the plan reported on by Delwiche was adopted. The results were so gratifying from the standpoints of eliminating the need of cultivation of alleys and the difficulties incident to such a method of handling plats, as well as not making it necessary to cut border rows, as to merit reporting at this time.

The plan used is presented graphically in Fig. 1. It differs from Delwiche's plan in that only two rather than six drill rows were grown...