VARIETAL COMPETITION AS A FACTOR IN YIELD TRIALS WITH SUGAR BEETS

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It has been demonstrated by various workers that competition effects between adjacent rows of different varieties of cereals or other crop plants, in cases where the varieties used differ in growth habit, may introduce a serious error in conducting yield trials. Only a meager amount of information is available on the effect of competition between adjacent rows of different varieties of sugar beets. It is certain that in many instances the possibility of the existence of such competition effects between varieties has been ignored in planning and harvesting sugar beet variety trials. To determine the effects of such competition a test was designed and conducted at the South East Experiment Station of the University of Minnesota in 1930, 1931, and 1932, wherein two standard brands of sugar beets differing in growth habits were used. These brands were grown alternately in one-row plats to determine whether the differences were of such magnitude as to affect yields seriously. As a standard for comparison, four-row plats of the same brands were grown in alternation, from which at time of harvest each outer row was removed and the two central rows were harvested. This plan was suggested by Kiesselbach and was the plan used by him in demonstrating the importance of competition between different varieties of small grains or corn when grown alternately in single-row plats.

Seed of the commercial brands, Old Type and Extreme Pioneer, was used. The Old Type brand is designated by the commercial seed company producing it as high in tonnage yield and moderate in sucrose percentage, whereas the Extreme Pioneer is designated as considerably lower in tonnage yield but higher in sucrose content than the other brand. The seed was planted at the rate of 25 pounds

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5Kleinwanzleben, Zuckerfabrik. Kleinwanzleben, Germany.