The Effect of Population and Fertility on Yields of Sweet Corn and Field Corn

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IN 1945 the University of Minnesota and the Green Giant Company initiated a series of experiments to study the effect of populations and fertility levels on the yields of sweet corn and field corn. The investigation included three phases, viz., population and spacing studies with sweet corn and field corn under optimum conditions; influence of fertility levels on the yield of sweet corn and field corn at four planting rates under ordinary field conditions; and a study of yield, ear-size, and percentage of cut corn as related to plant population of sweet corn under optimum and ordinary field conditions.

In the population and spacing studies an attempt was made to maintain at optimum as many as possible of the growth factors. These factors included fertility, moisture, and aeration. The light factor could not be maintained at optimum since it varied with spacing and to some extent with population.

The crops were grown on land in a 3-year rotation of oats with red clover to be plowed down as green manure in the late fall, corn, and peppers were plowed under. In addition the land annually a liberal application of a complete fertilizer applied broadcast. The land was irrigated to keep soil moisture optimum, and supplemental nitrogen was applied in the irrigation water. The soil, Terril silt loam, a colluvial soil adjacent to the Minnesota River, is highly productive.

In the fertility level study the corn was...