A rate and spacing corn experiment was started at the Akron, Colo., field station in 1924 in keeping with a policy of finding all possible facts about the reaction of the different adapted crops to the environment of this general region. One purpose of the experiment was to gain information on the response of corn to different spacings of the plants in regularly spaced 44-inch rows and to a widening of the row space to 88 inches. A second purpose was to determine to what extent winter wheat yields were influenced by the spacing of a preceding corn crop.

The soil on which this experiment was conducted is fairly uniform. It is a light brown loam, characterized in the native state by a short-grass cover of buffalo and grama grasses. The surface soil is underlain at a depth of 12 to 15 inches by a carbonaceous layer. The subsoil is slightly finer in texture than the surface and is interspersed by pockets of almost pure fine sand. This and other "hard land" soils are not nearly so well adapted to the growth of corn as the "soft", or more sandy soils, of the same general region.

MATERIALS AND METHODS

The spacing studies with corn were made in a 2-year rotation of corn and winter wheat. Three replications of each crop were grown each year. The winter wheat was grown on the land previously occupied by the spaced corn. The wheat was seeded at the rate of 3 pecks per acre in good season. During the earlier years of the experiment the seeding was done with an 8-inch disk drill. From 1927 on, a 12-inch furrow drill was used. Turkey, C. I. No. 1571, was the variety used.

The winter wheat stubble land was cultivated with a duckfoot or field cultivator soon after the wheat was harvested, with the front shovels removed, whenever weed infestation was bad enough to warrant. One or two early fall cultivations were sufficient to remove from 90 to 95% of the fall weed growth usual on stubble land in this region, and it did so without burying the trash and stubble of the preceding wheat crop. Occasionally it was deemed expedient to early spring cultivate with the same implement to correct a too badly weathered condition of the surface. In the spring, usually early in April, the land was plowed to a depth of 7 inches, and was then clean cultivated until the planting date of the corn. Usually one springtooth harrowing just in advance of seeding was all that was necessary.

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