INFLUENCE OF SPACING ON YIELD AND OTHER CHARACTERS IN SOYBEANS

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Many varieties and strains of soybeans differing in numerous characters frequently are tested together in rod-row nursery yield trials. Although much care may be taken to obtain comparable stands, there may be considerable variation in stand among different strains, or even within strains in different replications. Published data on the influence of plant spacing on different varieties of soybeans in nursery trials are very limited.

To study the effects of plant spacing of soybeans on yield and several other characters commonly obtained in the evaluation of varieties, an experiment on spacing was carried out with four varieties of soybeans at Lafayette, Ind., by the U. S. Regional Soybean Laboratory and the Purdue University Agricultural Experiment Station, cooperating. The work was conducted over the 4-year period from 1938 to 1941, inclusive.

Wiggans found that the soybean plant has the ability to make wide adjustments to space and that optimum rates and spacings for soybeans should be determined not only for the various soybean-producing areas but also for the varieties to be grown.

MATERIAL AND METHODS

The Mukden, Mandell, Dunfield, and Illini soybean varieties were used in this experiment. Mukden averaged 5 days earlier in this experiment than the other varieties which are of approximately the same maturity. All varieties are well adapted at Lafayette, Ind. Illini lodges the most and Mukden the least at the usually recommended rates of seeding.

A split-plot Latin square design was used with four replications of each variety. Varieties were on the main plots, while the sub-plots were devoted to spacing. Excessive amounts of seed were planted in single-row plots 18 feet long with 30 inches between rows. After emergence, the plants were thinned to 1, 2, 3, 4, and 5 inches apart in the various rows. The rows were trimmed to 16 feet in length at harvest and the yield of individual replications obtained from an area 2½ by 16 feet.

Lodging was recorded on a scale of 1 to 5 taken visually on each plot at maturity according to the following criteria: 1, almost all plants erect; 2, either all plants leaning slightly, or a few plants down; 3, either all plants leaning moderately,