Effect of Planting Date on Yield and Other Characteristics of Soybeans

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The purpose of this investigation was to determine the response of soybean varieties differing in maturity when planted at several dates. Such information is important for making recommendations to growers and in the interpretation of experiments planted at different dates.

Previous studies (2, 3, 5, 6, 8) indicate that generally early planting gave maximum seed yield. Feaster (3) and Osler and Cartter (6) report that early varieties should be planted later than late varieties for maximum yields, whereas Weiss et al. (8) found no significant differences for yield among planting dates of early varieties.

Maturity of late varieties was affected less by late planting than that of genetically earlier varieties (3, 6, 8). Plant height was found to decrease with delay in planting (6, 8). Weiss et al. (8) report that date of planting had no effect on lodging whereas Osler and Cartter (6) found an increase in lodging with later plantings. Feaster (3) states that planting date had little influence on seed quality of late varieties but that seed quality was poorest from early plantings of early varieties.

In general a delay in planting resulted in a decrease in oil content (2, 3, 4, 6, 7, 8) and an increase in protein content (2, 6, 7) and iodine number (2, 3, 6, 8). Weiss et al. (8) found that protein content was not affected by date of planting. Cartter and Hopper (1) report that the variance for oil and protein content and iodine number contributed by varieties was appreciably greater than that due to locations or years.

Materials and Methods

Five varieties, representative of the range of varieties grown in Wisconsin, were included in the test. Each variety was planted on approximately May 10, May 20, June 1, and June 10 each year during the 5-year period 1945-1949. All plots were on well-drained Miami silt loam soil of good fertility on the University of Wisconsin Farms at Madison, Wis.

The experimental design was a split-plot with four replicates in which dates of planting were whole-plots and varieties sub-plots. Each sub-plot consisted of a single 18-foot row spaced 3 feet from the adjacent sub-plot. Border rows were included between each whole-plot. The middle 16 feet of each sub-plot was harvested for seed yield. Data were obtained for agronomic characters, and from a composite of equal proportions from all replicates for the chemical determinations.

EXPERIMENTAL RESULTS AND DISCUSSION

The seed yield in bushels per acre, oil percentage, protein percentage and iodine number of the oil are presented in tables 1 to 4 respectively. Days from emergence to maturity, lodging index, plant height and seed quality at each date of planting averaged for all years are given in table 5. The coefficients of variation shown in tables 1 to 5 are the three factor interactions, varieties X dates X years expressed in percent of the general mean.

Large differences in seed yield were found among varieties, dates and years. The overall interaction of varieties and dates was not significant. However, a significant interaction with dates was indicated when the average of the