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1) Contributory applied research in growing soybean in the Mekong Delta - Socialist Republic of Vietnam.

During the period from 1976 through 1982, several experiments were carried out by the Soybean Research Center, University of Cantho, Socialist Republic of Vietnam to find out the most suitable varieties and the best cultural practices in the area. Among these experiments were the following: varietal selection and evaluation, interaction of agronomical physiological characteristics and tendency to boost seed yield in soybean, fertilization, seeding rate, row spacing, number of plants per hill, water requirements, and so on.

This communication is focused only on a collection of up-to-date experimental data available.

Varietal selection and evaluation: Four different soybean collections have been tested in 18 experiments with the unique procedure of randomized complete block design (RCBD) or sub-plot design (SBD) with 3 or 4 replicates.

With four soybean collections, it was found that, in soybean variety DH4, although its seed yield per hectare was not so high, its growth duration was shorter (75 days), and its productive efficiency was rather high; i.e., seed yield was approximately 21 kg/ha/day. The other soybean varieties, MTD 10 (a pedigree of 'Santa Maria'/'Wisconsin CF 111', a cross performed at the Soybean Research Center in 1974), and MTD 13 (an exotic soybean variety newly introduced from the Philippines in 1979) always showed a good yield performance in all experiments, especially in dry season. Seed yield of MTD 13 averaged 1.95 tons/ha. Their growth duration was the same - 85 days. In addition, there were two soybean entries, MTD 22 and MTD 65, that gave a potential seed yield rather high, 2.46 tons/ha and 2.19 tons/ha, respectively, but both their growth duration was longer - 91 days.

Interaction of some agronomic characters in three promising soybean varieties, MTD 10, MTD 13 and DH4: Based on experimental data of days to bloom, growth duration, 100-seed yield, number of branches, number of internodes, number of pods per plant, number of seed per square meter, and seed-yield efficiency, it was shown that, in MTD 10 and MTD 13, there was no statistically significant difference; in DH4 soybean variety, there was a statistically significant difference. In three soybean varieties, it was found that days to bloom, growth duration, number of internodes, number of pods per plant, 100-seed yield, and number of seed per square meter were all significantly different. But plant height and seed-yield efficiency of two soybean varieties, MTD 10 and MTD 13, were not significantly different, while number of internodes and seed-yield efficiency were not significantly different in MTD 10 and DH4.

In considering the influence of nine agronomic characters on soybean seed yield, it was found that, in three soybean varieties tested, number of seed per square meter seemed to be closely related to seed yield, while number of pods per plant seemed to have a little relation to seed yield. Besides, seed

yield efficiency affected the seed yield of MTD 13. One-hundred-seed weight, and number of internodes significantly exerted a positive effect on seed yield, and days to bloom had a negative relation to seed yield. In DH4 soybean variety, we should also consider two characters, plant height and 100-seed yield.

Influence of seeding rate, row spacing, and number of plants per hill on different soybean varieties: Four promising soybean varieties entered the experiment in different locations: Long khanh, Long an, Tien giang, Ben tre, An giang, and Hau giang. From these experiments, conclusions were made as follows:

Growth duration, interval of time of blooming, and time of pod formation were not influenced by seeding rate, number of plants per hill and row spacing, but they were especially influenced by characters of individual variety and time of planting.

Plant height had a tendency to increase with seeding rate. In the same seeding rate plant height seemed to be lower while number of plants per hill was higher and row spacing was wider.

One-hundred-seed yield and seed yield efficiency were not influenced by seeding rate, number of plants per hill, and row spacing.

Number of branches was rapidly reduced by higher seeding rate and by larger row spacing, but it was not changed in view of number of plants per hill.

Seed yield seemed to be proportional with seeding rate and in narrow row spacing, while number of seed per square meter had an effect on total seed yield. Number of seed per square meter increased with seeding rate in low number of plants per hill and in narrow row spacing.

With plant population of 500,000 per hectare, four soybean varieties (MTD 6, MTD 10, MTD 13 and DH 4) gave a high seed yield. These less branching soybean varieties DH4 and MTD 13 might be grown in higher seeding rate.

With row spacing 30-40 cm, we got the highest seed yield. This was perhaps due to shading effect of the canopy, a limiting factor of growth of weed.

Intercropping soybean with corn: Intercropping had no effect on plant height and growth duration of either corn or soybean. In intercropping corn with soybean at different seeding rates and varieties, total seed yield computed in rice tonnage (in proportion of 1 kg soybean equivalent to 4 kg corn equivalent to 4 kg rice) was higher in monoculture of corn and in that of DH4 soybean variety. It was lower in monoculture of MTD 13 in rainy season, but this fact still depends on current price of individual crop tested. Soybean variety MTD 13 seemed to be the most suitable one in mixed culture with corn. In intercropping, the multiple cropping index was higher. In order to have the same production of seed of either corn or soybean, cultivated land acreage must be higher from 21 % in rainy season to 43% in dry season.

Reference

Technical papers presented at a science and technology conference held at the University of Cantho in 1982 (in mimeograph).

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