

GENETIC ANALYSIS OF YIELD COMPONENTS AND GRAIN YIELD OF SOYBEAN (*Glycine max* L. MERR.) GENOTYPES

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Executive Summary

The study was undertaken at Sher-e-Bangla Agricultural University, Dhaka which belongs to the agro-ecological zone of Madhupur tract (AEZ 28), for evaluation of soybean (*Glycine max* L. Merr.) genotypes based on agro-morphogenic traits during the period from July 2021 to June 2022. This experiment was conducted with twenty-two genotype of soybean. The experiment was laid out in Randomized Complete Block Design with three replications. Data on various yield attributing characters such as, day to first flowering, days to 50% flowering, day to physiological maturity, days to harvest maturity, plant height, number of branches per plant, pod length, pod width, pod height, number of pod per plant, number of seeds per pod, 100 seed weight, seed yield per plot and yield were recorded to study genetic variability existing in different components of yield. Analysis of variance indicated highly significant difference among all the genotypes for all characters under study. The genotype G2 showed the lowest day to first flowering (46.33 DAS) while G13 showed the highest day to first flowering (74.33 DAS). The genotype G3 showed the earliest in days to 50% flowering (56.33 DAS) while G12 showed the late in days to 50% flowering (86 DAS). The genotype G2 showed the lowest day to physiological maturity (82 DAS) while G16 showed highest day to physiological maturity (135.33 DAS). The genotype G2 was the lowest day to harvest maturity (91.33 DAS) while G16 was highest day to harvest maturity (144.67 DAS). The maximum plant height (105.22 cm) was recorded by the genotype G13 and the lowest plant height (29.55 cm) was recorded by G2. Maximum number of branches recorded in G13 (6.22) and G20 (2.55) genotype showed the minimum number of branches. The minimum pod length was recorded by the genotype G12 (33.01 mm) and G1 (42.58 mm) showed the maximum pod length. The maximum pod wide was recorded by the genotype G1 (9.88 mm) and G2 (6.02 mm) showed the minimum pod wide. The minimum pod height was recorded by the genotype G5 (4.48 mm) and G2 (8.77 mm) showed the maximum pod height. The genotype G1 was the minimum number of pod per plant (27) while G13 maximum number of pod per plant (138.89). The minimum number of seed per pod was recorded by the genotype G22 (2.33) and G6 (3.11) showed the maximum number of seed per pod. The genotype G11 (11.27 g) showed the minimum seed yield per plant and the maximum seed yield per plant was recorded in the G13 (32.88 g). The genotype G17 (6.63 g) showed the minimum hundred seed weight and the maximum hundred seed weight was recorded in the G1 (20 g). In case of yield, genotype G11 (1.17 ton) produced minimum and G13 (3.13 ton) produced highest yield ton per hectare. Considering the mean performance, and other agro-morphogenic performance, genotypes G1 (GM0021), G2 (GM0009) and G13 (GM0014) found the potential for future breeding program in the response of increase soybean yield. G2 is potential for short duration soybean and it could be recommended to the farmers so that they could get more crop from the same land. G2 (GM0009) could also be included in future hybridization program to insert its short duration trait in other elite varieties of soybean of Bangladesh.

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