

Increased yield performance of mutation induced soybean genotypes at varied agro-ecological conditions

ABSTRACT

In soybean breeding program, continuous selection pressure on traits response to yield created a genetic bottleneck for improvements of soybean through hybridization breeding technique. Therefore an initiative was taken to developed high yielding soybean variety applying mutation breeding techniques at Plant Breeding Division, Bangladesh Institute of Nuclear Agriculture (BINA), Bangladesh. Locally available popular cultivar BARI Soybean-5 was used as a parent material and subjected to five different doses of Gamma ray using Co60. In respect to seed yield and yield attributing characters, twelve true breed mutants were selected from M4 generation. High values of heritability and genetic advance with high genotypic coefficient of variance (GCV) for plant height, branch number and pod number were considered as favorable attributes for soybean improvement that ensure expected yield. The mutant SBM-18 obtained from 250Gy provided stable yield performance at diversified environments. It provided maximum seed yield of 3056 kg ha⁻¹ with highest number of pods plant⁻¹ (56). The National Seed Board of Bangladesh (NSB) eventually approved SBM-18 and registered it as a new soybean variety named 'Binasoybean-5' for largescale planting because of its superior stability in various agro-ecological zones and consistent yield performance.