Binasoybean-6: A High Yielding Mutant Soybean Variety Developed through Sustainable Mutation Breeding

ABSTRACT

Background: Soybean is an important source of food, protein and oil and hence more research is essential to increase its yield under different agro-ecological conditions, including stress. In this regard, four popular soybean varieties viz. Shohag, BDS-4, BAU-S/64 and BARI Soybean-5 were irradiated using Co60 gamma rays to create genetic variation for earliness, higher seed yield and other desirable agronomic traits. Methods: The experiments were conducted at Bangladesh Institute of Nuclear Agriculture (BINA) Headquarters farm, Mymensingh during 2006-2009 and 28 elite mutant lines were selected for evaluation. The mutant line, SBM-22 derived from mother variety BARI Soybean-5 irradiated with 300Gy of gamma rays was found to be superior compared to other mutants. Considering the superior performance of mutant SBM-22 including 28 mutants and mother check variety BARI Soybean-5, were evaluated through different trials. The evaluation trials were conducted at different agro-ecological zones of the country during Rabi season (January to April) of 2010-2018. Result: Significant variations were observed both in individual location and over locations for all traits. Reactions to major diseases and insect-pests infestation were also studied. Due to better performance of the mutant SBM-22, Bangladesh Institute of Nuclear Agriculture (BINA) applied to the National Seed Board (NSB) of Bangladesh for registration as an important soybean variety "Binasoybean-6". Consequently, the NSB of Bangladesh registered SBM-22 as an improved soybean variety in 2019 as Binasoybean6 for commercial cultivation.