

B-114

Challenges in enhancing the breeder seed production of soybean in India under climate uncertainties

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Soybean [*Glycine max (L.) Merrill*] has a prominent place in agricultural commodities as the world's most important seed legume, which contributes 26.7% to the global vegetable oil production, about two thirds of the world's protein concentrate for livestock feeding and is also a valuable ingredient in formulated feeds for poultry and fish. Due to its unique chemical composition (20% oil and 40% protein), the crop has potential to mitigate rampant protein energy malnutrition in India, in particular, and developing world in general. Besides, a number of nutraceutical and functional compounds such as isoflavones, tocopherol and lecithin make it an ideal health food. In India, soybean is cultivated in an area of 8.90 mha with a production of more than 12 million tonnes. The major soybean growing states are Madhya Pradesh (6.38 m ha), Maharashtra (3.92 m ha), Rajasthan (1.18 m ha), Andhra Pradesh (0.25 m ha) and Karnataka (0.23 m ha). The direct contribution of quality seed alone to the total production is about 15-20% depending upon the crop and it can be further raised up to 45% with efficient management of other inputs. Advancement in agricultural production and productivity of soybean to a considerable extent rests on higher seed replacement rate (SRR) and varietal Replacement Rate (VRR). Not keeping pace with the growth in area and production, the growth in productivity of soybean has been slow with large year-to-year variations. The large variation in productivity in soybean across years is mainly associated with rainfed nature of the crop and erratic behavior of monsoon affecting planting, large spatial and temporal variability in rainfall received, soil moisture stress at critical growth stages, especially seed fill stage, high temperature stress at times at critical growth stages and non-availability of quality seeds to the farmers.