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Identification of potential soybean genotypes for seed longevity with high productivity
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Soybean plays an important role in the diet of humans worldwide and have the potential to nourish people in the near and distant future. The rapid expansion of the soybean acreage in India has led to an increasing demand for high quality seed. Among the various reasons ascribed for low productivity, poor seed longevity is a major problem. Soybean reaches its maximum potential for germination and vigour at physiological maturity, gradually declines till harvest, followed by more rapid decline thereafter particularly under warm and humid climatic conditions, as prevalent in India. Soybean seed germination is often reduced below the recommended standards (70% germination) within a single planting season, due to field weathering, mechanical damage and physio-biochemical parameters. Planting of such seeds leads to poor emergence, hence, poor crop stand and reduced productivity. High quality seed that provides adequate plant stand is the basis for profitable production and expansion of soybean crop. Keeping these things in view, 144 germplasm lines were evaluated for seed longevity and eighteen genotypes were selected for good seed longevity based on initial germination and germination after accelerated ageing. Eight genotypes were found to be poor in seed longevity. These eighteen identified lines along with checks, JS 93-05 and JS -335 were analysed for yield and yield component traits and five potential genotypes were identified with high yield and good seed longevity. The genotype DSb 21 showed highest yield (26.3 g/ plant) with least reduction in germination (5.25%), more number of pods per plant (48.80) and high protein content (38.3) followed by DSb 3-4, IC 39751, VLS 14 and SL48-40. However, many genotypes like DB 9818, EC 241761, G 48, PK 119, Indira soy 9, J-30-100, CO 2 and JS 71-05 showed very high per cent reduction in germination indicating poor seed longevity.