

TRUE POTATO SEED - AN EMERGING TECHNOLOGY FOR SUSTAINABLE POTATO PRODUCTION IN BANGLADESH

Dr. Tuhin Suvra Roy¹

Extended Summary

Potato production from true potato seed (TPS) is highly promising and may put remarkable contribution to potato production for marginal farmers of developing countries. But the farmers often face serious problems for the utilization of TPS technology. On this aspect, some agronomic management practices were conducted during 2010-11 to find out the appropriate method of utilization of TPS and to make TPS more attractive to the potato farmers. Thirty one hybrid TPS progenies were evaluated in nursery beds followed by normal planting in field. In nursery beds, among the 31 TPS progenies, the yields of seedling tubers were exceptionally high in P-364 × TPS-67 (73.4 t ha⁻¹). In the following year, the seedling tubers were planted in the field to observe their performance in second generation. Both nursery bed and field, 3 progenies, TS-7 × TPS-67, MF-11 × TPS-67 showed superior performance in respect of tuber uniformity, virus infection and tuber yield.

Nutrient conditions in the potato mother plants directly affect the production of quality TPS. Therefore, experiments were conducted during 2010-11 to examine the effects of combinations of different levels of nitrogen (N), phosphorus (P) and Potassium (K) on yield and quality of TPS using crosses of ♀MF-II and ♂TPS-67. Four levels of each of N (0.150, 225 and 300 kg ha⁻¹) and P (0, 60, 120 and 180 kg ha⁻¹) were applied to MF-II for obtaining better flowering, berry setting, and TPS production. Out of the 16 treatment combinations, the highest 100-TPS weight (84.1 mg) was obtained with 300 kg N and 120 kg P ha⁻¹, while the highest TPS yield (136.1 kg ha⁻¹) was obtained with 225 kg N and 120 kg P ha⁻¹. Considering the findings of the previous study, 2 levels of N (225 and 300 kg ha⁻¹) and a fixed value of P (120 kg ha⁻¹) were selected as promising for TPS production. Twelve combinations of 3 N (0, 225 and 300 kg ha⁻¹ respectively) and 4 K (0, 125, 175 and 225 kg ha⁻¹ respectively) levels were also applied to MF-II to investigate the effects of yield components of TPS. The weight of 100-TPS increased with increasing N rate but decreased with increasing K rate. The highest 100-TPS weight (83.8 mg) and maximum quantity (113 kg ha⁻¹) of quality (> 1.18 mm) TPS were obtained with the application of 300 kg N and 125 kg K ha⁻¹, while 225 kg N and 125 kg K ha⁻¹ produced the highest TPS yield (145.3 kg ha⁻¹).

¹ Professor, Dept. of Agronomy, Sher-e-Bangla Agricultural University, Dhaka