



Evaluation of Orange-Fleshed Sweet Potato Genotypes (*Ipomoea batatas* L.) Under South Gujarat Conditions

Sweet potato (*Ipomoea batatas* L.) is a herbaceous and perennial plant, which can be grown in tropical, subtropical and frost free temperate climatic conditions. The crop is grown as a starchy food crop and has high yield potential. The tubers are used as secondary staple, vegetable and feed in piggery and poultry. Pruned vines of sweet potato are used as animal feed. Orange-fleshed sweet potato varieties are most important as they are rich in β -carotene. Increasing the consumption of orange-fleshed sweet potato at household level can increase supplementation of the diet with vitamin A (Kulembeka et al., 2004). When compared to other staple foods, orange-fleshed sweet potato has more potential vitamin A. For example, 100 g of golden rice (transformed rice) has 10-20 mg retinol equivalent (RE), which provides 2.5-5.1% of recommended daily requirement (RDA) while orange-fleshed sweet potato has 625-1250 mg RE, which provides more than 100% of the RDA of Vitamin A (Walker et al., 2001). In India, sweet potato is grown in an area of 1.11 m ha with a production of 11.3 m t and productivity of 10.1 t ha⁻¹ (NHB, 2013). Sweet potato is extensively cultivated in middle, eastern and southern part of Gujarat, where the economically poor tribal population is situated. Hence, efforts were made to identify promising orange-fleshed sweet potato genotypes for commercial cultivation in Gujarat.

An experiment was conducted during *rabi* season of 2010-2011 at the Regional Horticultural Research Station, Navsari Agricultural University, Navsari, Gujarat,

under the All India Co-ordinated Research Project (AICRP) on Tuber Crops. Thirteen genotypes of orange-fleshed sweet potato viz., S-61, S-1156, S-1281, SV-98, 362-7, CIP SWA-2, 187017-1, 440038, 440127, ST-14, Kamal Sundari, CARI SP-1 and Gouri (as check) were evaluated for yield, dry matter, weevil incidence, β -carotene and harvest index. Cuttings of these varieties were planted at a spacing of 60 cm x 20 cm in plots of size 3.0 m x 2.4 m. The plots were arranged in a randomized block design with three replications. Planting was done during the month of January. The crop was grown under irrigated condition. Recommended package of practices (CTCRI, 2009) was followed and mature tubers were harvested at 120 days after planting. The data on various characters studied during the course of investigation were statistically analyzed as per the procedure outlined by Panse and Sukhatme (1978).

The highest tuber yield (33.18 t ha⁻¹, 58.11% higher than the check variety, Gouri) was produced by the genotype 440127, which was statistically on par with the genotype 440038 (32.20 t ha⁻¹, 53.41%

Table 1. Tuber yield, dry matter content, weevil damage and harvest index of orange-fleshed sweet potato genotypes

Genotypes	Yield (t ha ⁻¹)	Dry matter (%)	Damage by weevil (%)	Harvest index
S-61	15.32	25.13	2.44	0.408
S-1156	16.67	23.93	6.74	0.421
S-1281	15.09	31.20	4.30	0.345
SV-98	21.39	22.97	5.55	0.331
362-7	31.23	26.53	5.26	0.513
CIP SWA-2	22.35	26.10	3.54	0.503
187017-1	13.60	25.23	7.22	0.383
440038	32.20	29.53	7.44	0.509
440127	33.18	22.67	10.02	0.514
ST-14	18.69	34.70	4.21	0.467
Kamal Sundari	28.14	25.50	9.60	0.493
CARI SP-1	16.26	25.00	3.99	0.438
Gouri (control)	20.98	22.50	6.72	0.403
CD (0.05)	3.68	3.73	1.12	0.058

higher than the check variety, Gouri) and 362-7 (31.23 t ha⁻¹, 48.84% higher than the check variety, Gouri) (Table 1). The highest dry matter content (34.70%) was observed in the genotype ST-14, which was on par with the genotype S-1281 (31.20%). The highest harvest index (0.514) was observed in the genotype 440127, which was on par with 362-7, 440038, CIP SWA-2, Kaml Sundari and ST-14. The tubers of genotype S-61 had minimum damage (2.44%) by sweet potato weevil. Similar results were reported by Allolli and Shetty (2012) in the same genotype. Considering both the tuber yield and lower weevil infestation (5.26-10.02%) the genotypes, 4400127, 440038 and 362-7 can be considered as promising genotypes for commercial cultivation in Gujarat.

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Received: 5 April 2013; Accepted: 30 December 2013

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