



Research Note

Studies on performance of different guava cultivars under western Maharashtra conditions

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Abstract

The present investigation was made on eight different guava cultivars viz., Basti Red, Apple Colour, Chittidar, Seedless, Behat Coconut, Arka Amulya, Arka Mrudula and Sardar under Western Maharashtra conditions. Results of two year study indicated that the cv. Sardar (L-49) produced higher fruit yield (56.39 kg/plant/year). All other seven cultivar's fruit yield was in between 36.24 kg/plant/year (Chittidar) and 46.05 kg/plant/year (Arka Amulya). Average number of fruits per plant and average fruit weight were significantly superior in cv. Sardar (L-49) (333.83 and 168.41 g). The cv. Sardar (L-49) also recorded highest TSS and shelf life (12.92 ° Brix, and 80.41 hrs) respectively. However, it was observed that, seeds of Arka Amulya and Arka Mrudula were soft whereas that of Sardar (L-49) were hard.

Key words

Guava varieties, yield and quality.

Guava (*Psidium guajava* L.) is one of the important fruit crops of tropical and subtropical regions in the country. Besides India, it is grown widely throughout the tropics of the world. Because of its better adaptability, it is known "apple of tropics". Guava fruit is rich source of Vitamin C, minerals like calcium, iron and phosphorus with pleasant aroma and flavor (Dhaliwal and Dhillon, 2003). In India, it is grown on 2.68 lakh ha area with production of 36.67 lakh MT and productivity of 13.70 MT. In respect of Maharashtra, it is grown on 40,000 ha area with total production of 3.24 lakh MT and productivity of 8.10 MT (Anonymous, 2014). In Maharashtra area under Guava is dominated by cv. Sardar (Lucknow - 49). It was felt essential to screen the performance of nationally adopted guava cultivars under Western Maharashtra conditions. Hence, an attempt was made to confirm the superiority of this cultivar in this region.

The present investigation was carried out at National Agriculture Research Project (Plain Zone) Ganeshkhind, Pune. Tongue layered plants of eight cultivars viz., Basti Red, Apple Colour, Chittidar, Seedless, Behat Coconut, Arka Amulya, Arka Mrudula and Sardar (L-49) were planted in deep black alluvial soil at 6 x 6 m distance during August 2002. Fruits of these cultivars were harvested during the year 2009 - 10 and 2010-11. Twelve plants of each cultivar were used for study, four plants being a unit of replication. The fruit harvested during major winter season were used for recording data. The experiment was laid out in Randomized Block Design with three replications. Ten fruits were randomly harvested from each replication for recording the observations. Observations on plant height, East West spread,

Noth South spread, trunk girth at 30 cm above the ground, number of fruits per tree per year, yield per tree per year, fruit dimensions, TSS, number of seeds per fruit were recorded. The data were analyzed as methods suggested by Panse and Sukhatme (1985).

Growth characters: The plant growth was recorded in terms of plant height, trunk girth at 30 cm above the ground, East West (EW) and North South (NS) spread. Significant differences were recorded for all these characters. All these growth parameters viz., plant height, trunk girth, East West (EW) and North South (NS) spread were found maximum in cv. Behat Coconut (4.42 m, 61.00 cm, 6.06 m and 5.73 m respectively). However, regarding different growth parameters of cv. Behat Coconut, its plant height was on par with cv. Basti Red (4.34 m), EW spread was on par with Sardar (5.93 m) and NS spread was on par with cv. Chittidar (5.69 m) and Apple Colour (5.58 m) (Table 1). These results are in agreement with findings of Patel *et al.* (2007 and 2011).

Fruit characters: The data presented in table 1 in respect of fruit characters revealed that the significant differences were recorded for different fruit characters viz., fruit length, fruit diameter and average fruit weight. The fruit length was found maximum in Arka Amulya (6.71 cm) which was on par with Chittidar (6.67 cm) and Arka Mrudula (6.68 cm). The maximum fruit length in Arka Amulya was due to its characteristic ovate fruit shape. The cv. Sardar (L-49) recorded significantly superior fruit diameter (6.71 cm). Regarding seed hardness, soft seeds were noticed in Seedless, Arka Mrudula and Arka Amulya. However, in cv. Sardar hard seeds were observed. (Table 1). These

results are in accordance with Singh (2003) and Ghosh *et al.* (2013).

Fruit yield: In this aspect cv. Sardar (L- 49) proved its superiority. This cultivar recorded significantly maximum average fruit weight (168.40 g), number of fruits per plant per year (333.83), and yield (56.89 kg/plant/year and 156.63 q/ha/year). The minimum fruit weight (123.82 g) was recorded in Apple Colour, minimum number of fruits per plant (282.83) recorded in Arka Mrudula. Fruit yield was lowest in cv. Chittidar (36.24 kg/plant/year and 100.66 q/ha/year). The cv. Sardar recorded highest fruit yield as compare to other varieties studied in the present investigation. Hence, this variety is grown on commercial scale in western Maharashtra. Similar results were obtained by Singh (2003).

Quality Parameters: The quality parameters viz., TSS and shelf life were studied. The cv. Sardar (L-49) recorded significantly superior TSS (12.92° Brix) over all the varieties under study. The maximum shell thickness (1.26 cm) was found in Arka Amulya which was significantly superior over all varieties under study. Shelf life was also found maximum (80.41 hrs) in cv. Sardar. (Table 1). The maximum shelf life in this cultivar was might be due to more shell thickness and slow respiration leading to delayed ripening. These results are in accordance with Patel *et al.* (2011) and Ghosh *et al.* (2013).

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Table 1. Performance of different cultivars of guava under Western Maharashtra conditions (Pooled)

Cultivars	Plant height (m)	Trunk Girth at 30 cm (cm)	Plant spread (EW) (m)	Plant spread (NS) (m)	Fruit length (cm)	Fruit diameter (cm)	Shell thickness (cm)	Fruit weight (g)	No. of fruits plant ⁻¹	Yield plant ⁻¹ (kg)	Yield ha ⁻¹ (Qt.)	T.S.S (°Brix)	No. of seeds fruit ⁻¹	Shelf life (Hrs)	Seed hardness
Basti Red	4.34	46.08	4.98	5.34	6.51	6.19	1.05	144.66	297.83	42.99	119.42	11.275	107.00	72.17	Hard
Apple Colour	4.08	45.25	5.29	5.58	6.20	5.71	0.99	123.88	305.00	38.16	106.01	11.930	67.67	73.89	Semi-hard
Chittidar	3.77	49.17	5.36	5.69	6.67	6.30	1.15	145.27	249.67	36.24	100.66	12.058	90.33	82.60	Semi-hard
Seedless	4.08	56.00	5.08	5.00	5.88	6.16	1.14	132.30	301.83	39.96	111.01	12.000	59.67	77.23	Soft
Behat Coconut	4.42	61.00	6.06	5.73	6.86	5.85	1.15	146.74	309.50	44.96	124.89	12.133	255.33	81.00	Semi-hard
Arka Amulya	3.61	42.25	4.49	4.71	6.71	6.55	1.26	157.35	292.67	46.05	127.92	12.467	108.66	79.00	Soft
Arka Mrudulla	3.70	43.33	4.59	4.48	6.68	6.18	1.10	145.28	282.83	40.89	113.57	12.267	107.33	76.48	Soft
Sardar	4.15	50.28	5.98	5.32	6.52	6.71	1.22	168.41	333.83	56.39	156.63	12.917	234.66	82.20	Hard
S.E.±	0.09	1.57	0.13	0.18	0.09	0.074	0.09	3.67	13.046	2.23	6.18	0.158	15.64	0.21	
C.D. at 5%	0.25	4.46	0.39	0.53	0.27	0.21	0.05	10.58	37.611	6.42	17.83	0.456	47.89	0.65	