

Performance Evaluation of Guava (*Psidium guajava* L.) Introductions in Arid Conditions of Western Rajasthan

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Abstract: The growth, yield and quality traits of seven varieties of guava (*Psidium guajava* L.) were evaluated during the winter season of 2015-16. Plant height was higher in red fleshed and L-49 but plant spread and stem diameter was higher in Allahabad Safeda and Sarbati. The highest yield was recorded in Allahabad Safeda followed by L-49. Flesh color was pink in Lalit, red in Red Fleshed whereas white in other varieties. The fruit weight ranged from 87.2 g to 152.0 g in Lalit and Sarbati, respectively. Fruit size and number of seeds/100 g fruit was maximum in Sarbati whereas, pulp thickness was maximum in Allahabad Safeda. The highest TSS was observed in MPUAT Sel. 1 whereas, acidity was highest in Lalit. Total sugar was highest in Red Fleshed but the pectin content was observed highest in L-49.

Key words: Guava, evaluation, fruit quality, arid conditions.

The guava (*Psidium guajava* L.) popularly known as poor man's apple, belongs to the family Myrtaceae, and is being cultivated in the tropical and sub tropical parts of India. Due to its high nutritive value, wide adaptability in diverse agro-climatic condition, early and prolific bearing with a good return, the crop has been gaining popularity as a commercial crop in Northern India. The fruit is a rich source of vitamin C, calcium, iron and pectin. Guava crop bears twice a year, i.e., during rainy season and winter season. The bearing behavior is related to the growth of plants in different vegetative flushes, which is in general guided by climatic conditions (Dubey *et al.*, 2000). The fruit has high demand for table purpose as well as in preservation industry for preparation of jelly and jam. The quality of the guava fruit is observed to be better in winter season (Patel *et al.*, 2011). Being hardy in nature guava can withstand adverse climatic conditions and grow under various soil types (Ghosh *et al.*, 2013; Dhaliwal and Dhillon, 2003). In Rajasthan the guava is commercially cultivated in Bundi, Chittorgarh, Dholpur, Kota, Tonk, Sawai Madhopur, Udaipur where the soil and climatic conditions are conducive for the crop (Anonymous, 2015). During 2014-15, guava was cultivated over 2457 ha with a total production of 23.75 MT and a productivity of 93.92 q ha⁻¹ in the state (Anonymous, 2015). However, there is a large area in western part of the Rajasthan

state having poor soil, low and erratic rainfall and availability of irrigation water is a problem thus affording a few fruit crops. Whether guava could be grown in such areas was the aim of this study. Keeping this in view air layered plants of seven varieties were introduced in 2012 and planted in square system at spacing of 5 m x 5 m under ring method of irrigation. The analysis of physical and biochemical attributes would serve as a tool for evaluation of guava cultivars suitable for the arid irrigated region of western Rajasthan.

Materials and Methods

Seven genetically diverse cultivars/genotypes viz. Allahabad Safeda, L-49, Lalit, Shweta, Sarbati, MPUAT Selection 1, and red fleshed were evaluated with respect to growth, yield and quality traits of fruit at the ICAR-Central Arid Zone Research Institute Jodhpur Rajasthan. Air layered plants introduced in 2012 from Maharana Pratap University of Agriculture and Technology Udaipur and planted at spacing of 5 m x 5 m in randomized block design, replicated thrice with two plants in each replication. Crop was regulated for *Mrig bahar* i.e. flowering in June-July and fruiting from November till February. Three uniform trees of each cultivars were selected from established orchard of guava for recording observations on growth in terms of plant height (m), stem diameter (cm) and mean plant spread (m). Average fruit weight (g) was calculated

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