



Effect of Plant Density and Corm Size on the Growth and Yield of Elephant Foot Yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson)

Elephant foot yam (*Amorphophallus paeoniifolius* (Dennst.) Nicolson) is widely cultivated as a tuberous vegetable in India. It has high production potential, good taste and cooking quality. The total cultivated area in Gujarat is about 107.91 lakh ha and elephant foot yam occupies an area of 2.46 lakh ha. The major cultivated area of elephant foot yam (350 ha) is under a local variety in Gujarat. The major problems in elephant foot yam cultivation is the lack of quality planting material and lack of scientific cultivation practices. Taking into account the importance of this crop in Gujarat, a field experiment was conducted to determine the effect of plant density and seed corm size on corm yield of elephant foot yam

var. Gajendra.

A field experiment was conducted to determine the effect of plant density and seed corm size on corm yield of elephant foot yam var. Gajendra, at the Regional Horticultural Research Station, Navsari Agricultural University, Navsari, during the rabi seasons of 2010-2011 and 2012-2013. The experiment was laid out in RBD with nine treatments and three replications. The treatments were:

- T₁: 250 g seed corm size and 60 x 60 cm plant spacing
- T₂: 250 g seed corm size and 75 x 50 cm plant spacing
- T₃: 250 g seed corm size and 75 x 60 cm plant spacing

Table 1. Effect of plant density and sett size on growth and yield of elephant foot yam

Treatment	Treatment details	Plant height (cm)		Pseudostem girth (cm)		Canopy spread (cm)		Corm girth (cm)	Yield (t ha ⁻¹)
		90	120	90	120	90	120		
		DAP	DAP	DAP	DAP	DAP	DAP		
T ₁	250 g seed corm size and 60 x 60 cm plant spacing	50.10	77.87	15.13	17.02	56.13	83.12	67.87	60.50
T ₂	250 g seed corm size and 75 x 50 cm plant spacing	58.20	85.53	17.98	19.68	59.18	84.17	63.53	61.05
T ₃	250 g seed corm size and 75 x 60 cm plant spacing	61.10	86.67	18.00	18.20	65.40	90.50	60.67	61.85
T ₄	500 g seed corm size and 60 x 60 cm plant spacing	52.07	80.87	14.00	16.25	58.80	78.47	66.87	55.20
T ₅	500 g seed corm size and 75 x 50 cm plant spacing	55.07	78.73	16.27	17.50	34.20	82.60	68.73	60.25
T ₆	500 g seed corm size and 75 x 60 cm plant spacing	65.90	89.22	18.96	21.46	71.40	102.25	72.94	71.52
T ₇	750 g seed corm size and 60 x 60 cm plant spacing	46.67	78.33	14.40	16.00	59.00	86.20	64.33	45.00
T ₈	750 g seed corm size and 75 x 50 cm plant spacing	52.47	19.00	16.13	17.00	59.13	85.20	68.27	44.30
T ₉	750 g seed corm size and 75 x 60 cm plant spacing	59.80	86.84	18.40	20.42	69.73	96.00	68.85	49.25
	CD (0.05)	9.96	10.20	2.64	3.75	11.67	15.36	3.30	9.39

- T₄: 500 g seed corm size and 60 x 60 cm plant spacing
 T₅: 500 g seed corm size and 75 x 50 cm plant spacing
 T₆: 500 g seed corm size and 75 x 60 cm plant spacing
 T₇: 750 g seed corm size and 60 x 60 cm plant spacing
 T₈: 750 g seed corm size and 75 x 50 cm plant spacing
 T₉: 750 g seed corm size and 75 x 60 cm plant spacing

The growth attributes, percentage of sprouting, plant height, pseudostem girth and canopy spread were influenced by the treatments (Table 1). The treatments had significant influence on plant height. Maximum plant height (65.90 cm at 90 days after planting (DAP) and 89.22 cm at 120 DAP) was observed in the treatment T₆ (750 g seed corm size and 75 x 50 cm plant spacing). The treatment T₆, also resulted in the maximum pseudostem girth (18.96 cm at 90 DAP and 21.46 cm at 120 DAP), while the treatments, T₂, T₃ and T₉ were on par with T₆. The treatment, T₆, also resulted in the maximum canopy spread (71.40 cm at 90 DAP and 102.25 cm at 120 DAP), while the treatments, T₉ and T₃ were on par with T₆.

Data pertaining to corm girth and yield as affected by different treatments are presented in Table 1. Corm girth and corm yield were significantly affected by the treatments. Significantly highest corm girth (72.94 cm) was observed in the treatment, T₆, which was followed by T₉. The significantly highest corm yield (71.52 t ha⁻¹)

was noticed in T₆, followed by T₃.

The results of the present investigation are in agreement with those reported by Das et al. (1995), James George and Nair (1993), Kumar et al. (1973), Patel et al. (2008) and Saravaiya et al. (2010) in elephant foot yam.

It can be concluded that planting 750 g seed corm size at 75 cm x 50 cm spacing was the most effective for getting higher corm yield in elephant foot yam var. Gajendra.

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N.B. Patel
 K.D. Desai
 J.C. Patel
 S.N. Saravaiya
 G.S. Tekale
 S.J. More

Regional Horticultural Research Station, Department of Vegetable Science, ASPEE College of Horticulture and Forestry, Navsari Agricultural University, Navsari 396 450, Gujarat, India

Corresponding author: N. B. Patel,

e-mail: nitin_nau@yahoo.co.in

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