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## Performance evaluation of tuberose (*Polianthes tuberosa* L.) cultivars under Northern Telangana Zone

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**ABSTRACT :** An experiment was conducted to assess the performance of four cultivars of tuberose to find out their suitability under the Northern Telangana Zone at Horticultural Research Station, Adilabad. Significant variation was observed among the cultivars for both vegetative and floral characters. Among the cultivars, 'Hyderabad Single' has recorded significantly highest plant height (68.72 cm) and number of leaves per plant (61.80). However, the number of days required for flowering was significantly highest (89.80) in 'Hyderabad Single' when compared with the 'Hyderabad Double' (76.60) which has recorded significantly lowest number of days. The number of florets per spike was significantly highest (35.80) with the cultivar 'Hyderabad Single'. Based on the vegetative and floral parameters the performance of 'Hyderabad Single' was found superior when compared with other cultivars under the Northern Telangana Zone conditions.

**KEY WORDS :** Tuberose, Plant height, Spike length, Number of florets per spike

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**T**uberose (*Polianthes tuberosa* L.) being an important bulbous flower crop, belonging to the family Amaryllidaceae, grown in many parts of India. The flowers are used in many ways owing to their fragrant nature as cut flower in the floral arrangement and decorations, as loose flower it is used in making the garlands and veni. Apart from these, the flowers also contain an important essential oil ingredient called concrete and absolute which are used in making the fragrant scents and oils. Because of all these advantages tuberose has been found as a sound flower in the commercial market and many farmers are attracted to grow this flower on a commercial basis. But the information about the suitability of varieties to a particular environment is meagre. Hence, the present experiment was carried out to find the suitability and efficacy of cultivars to the Northern Telangana Zone.

### RESEARCH METHODS

The present investigation was carried out during the years 2002-03 and 2003-04, at the Horticultural Research Station, Adilabad which comes under the Northern Telangana Zone. Four cultivars of tuberose viz., 'Coimbatore Single', 'Coimbatore Double' collected from Railway Kodur (South Coastal Zone) and 'Hyderabad Single', 'Hyderabad Double' collected from Hyderabad (Southern Telangana Zone) were used in the present study to test their efficacy to suit to the Northern Telangana conditions. The experiment was laid out in a Randomized Block Design with four cultivars (treatments) and five replications. The plot size was 4.0 m x 4.0 m and the plants were spaced at 30 cm x 20 cm. Bulbs of uniform size (2.5 to 3.0 cm diameter) were used for planting. Planting was done during the month of February, 2003 at a depth of 5-7 cm and the data were

recorded for two years. The observations on plant height, number of leaves per plant, number of days required to flower, spike length, number of spikes per bulb, number of florets per spike and flowering duration *i.e.*, number of days florets remained on the spike were recorded. The data collected from two seasons were pooled together and analyzed statistically as per the method described by Panse and Sukhatme (1985).

## RESEARCH FINDINGS AND DISCUSSION

The analysis of variance has revealed that all the growth parameters were found significant (Table 1). Among the cultivars tested 'Hyderabad Single' recorded significantly highest plant height (68.72 cm), where as 'Coimbatore Double' cultivar recorded significantly lowest plant height (56.34 cm). 'Hyderabad Double' and 'Coimbatore Single' were at par with 'Coimbatore Double'. Pratap and Rao (2003) also reported similar observations under the Southern Telanagana Zone conditions, which were in close confirmation with the present investigation.

Number of leaves produced per plant was found significant with all the cultivars. 'Hyderabad Single' (61.80) followed by 'Hyderabad Double' have produced significantly higher number of leaves per plant. 'Coimbatore Double' (53.60) followed by 'Coimbatore Single' significantly produced lower number of leaves per plant. Among the cultivars Double cultivars produced lower number of leaves per plant than their respective Single cultivars. From the data it is evident that number of leaves produced per plant seems to be cultivar specific. Biswas *et al.* (2002) also reported similar observations while working on tuberose.

Number of days required to flower will decide the cultivar either early or late flowering. From the data it

was observed that 'Hyderabad Double' has recorded significantly lowest (76.60) number of days required for flowering, where as 'Hyderabad Single' required maximum (89.80) number of days for flowering. Number of days required for flowering with Coimbatore cultivars was intermediate. Stockman *et al.* (1983) have reported that reduction of days required for flowering might be due to the increased rate of photosynthesis and mobilization of sucrose to the shoots which have positive influence on flowering.

Spike length has recorded a significant variation. Among the cultivars, 'Coimbatore Single' recorded significantly longest (86.12 cm) spike length followed by 'Hyderabad Single' (84.78cm) which was at par with 'Coimbatore Single'. Both the Double cultivars recorded lower spike length with no significant difference between them. Spike length was observed in close relation with the plant height.

Number of florets per spike has also recorded a significant variation. Among the cultivars, 'Hyderabad Single' has recorded significantly more number of florets per spike (35.80), where as 'Hyderabad Double' and 'Coimbatore Single' were at par with 'Hyderabad Single'. 'Coimbatore Double' has recorded significantly lower number of florets per spike. From the data it is evident that the number of florets per spike was closely associated with the number of leaves per plant which supplies the carbohydrate assimilates required for flower production.

There was no significant variation for number of spikes per bulb and flowering duration among the cultivars. However, 'Hyderabad Single' has recorded more number of spikes per bulb (2.60), where as 'Coimbatore Double' has recorded longer flowering duration (19.00 days).

**Table 1 : Performance evaluation of tuberose cultivars for vegetative growth and flower yield parameters under Northern Telangana zone**

Cultivars	Plant height (cm)	No. of leaves/plant	No. of days to flower	Spike length (cm)	No. of spikes/bulb	No. of florets/spike	Flowering duration (days)
Coimbatore Single	59.84	56.20	78.80	86.12	2.00	32.00	17.80
Coimbatore Double	56.34	53.60	79.20	77.24	2.20	31.60	19.00
Hyderabad Single	68.72	61.80	89.80	84.78	2.60	35.80	18.40
Hyderabad Double	59.90	60.20	76.60	78.56	2.40	35.20	18.80
Mean	61.20	57.95	81.10	81.68	2.30	33.65	18.50
S.E. <sub>±</sub>	1.42	1.54	1.42	1.04	--	1.35	--
C.D. (P=0.05)	4.38	4.75	4.36	3.19	NS	4.14	NS

NS= Non-significant

Based on the vegetative and floral parameters, the performance of 'Hyderabad Single' was found excellent even though a little bit late in flowering. Both the Double cultivars were observed with no significant differences under the Northern Telangana Zone conditions.

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