

## Vegetative growth as influenced by planting depth and spacing in Tuberose (*Polianthes tuberosa* L.) CV. single

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### SUMMARY

A field trial consisting of three different planting depth (4.0, 5.5 and 7.0 cm) and two spacing (10x20cm and 20x20cm) was carried out C.C.S. University, Merrut (U.P.) to asses the comparative performance of these planting depths and spacing for improving the yield of tuberose. The experiment was laid out in factorial randomized block design with three replications. Maximum number of sprouts (3.94 and 5.06), number of leaves (23.52 and 38.57), length of longest leaf (52.35cm and 58.82cm) at 65 and 85 days after planting were found under the treatment D<sub>1</sub> where the bulbs were planted at the depth of 4.0 cm. Wider spacing (20x20 cm) produced maximum number of sprouts (3.63 and 4.56) and highest number of leaves per plant (22.11 and 39.77). Spacing had no significant effect on length of longest leaf and height of the plant. Therefore 4.0 cm depth of planting and 20x20 cm spacing may be recommended for better vegetative growth of tuberose.

Key words: Tuberose, depth, spacing, bulb, clump, sprouts

**T**uberose (*Polianthes tuberosa* L.) an important commercial flower crop of India. Its sweet scented, waxy white flowers are highly valued for preparing garlands, bouquets and for vase decoration. CV. Single with high essential oil content is considered most suitable for essential oil and their flower is used for garland making and as cut flower too. The commercial cultivation of tuberose is being carried out in several states of India viz. West Bengal, Karnataka, Tamil Nadu, Andhra Pradesh, Maharastra, Haryana, Uttranchal, Delhi and Uttar Pradesh etc. It is well known that agro techniques play an important role in the production of commercial flower such as tuberose. In addition, the depth of planting as well as spacing also is known to influence the vegetative growth in tuberose. Therefore, keeping these aspects in view a trial was carried out to find out the optimum depth of planting and adequate spacing for the cultivation of tuberose for maximum yield under the agro-climatic condition of Meerut Region.

### MATERIALS AND METHODS

This experiment was carried out at Horticulture Research Farm of Department of Horticulture, Institute of Advance Studies, Chaudhary Charan Singh University, Merrut (U.P.) and manuscript was submitted to university during 2003. The experiment was laid out in the field in a factorial randomized block design with three depth of planting viz. 4.0 cm(D<sub>1</sub>), 5.5 cm(D<sub>2</sub>), 7.0 cm (D<sub>3</sub>) and two spacing 10 x 20 cm (S<sub>1</sub>), 20x20 cm(S<sub>2</sub>). Altogether there were six treatment combination which were replicated thrice. Observation pertaining to different parameters of vegetative growth were recorded a 65 and 85 days after

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planting and data were analyzed statistically.

### RESULTS AND DISCUSSION

#### *Depth of planting:*

A detailed study of data pertaining to number of sprouts/ clump, number of leaves plant, length of longest leaf and height of plant shows that shallow depth of planting had significantly superior effect over the deep planting. The maximum, number of sprouts/ clump (3.94 at 65 days stage and 5.06 at 85 days stage), number of leaves/ plant (23.52 and 38.57), length of longest leaf (52.35 and 58.82) and maximum height of plant (43.62 cm and 50.61 cm) were found when the bulbs were planted at the depth of 4.0 cm. The similar effects were also reported by Roa *et al.*, (1992), Bhattacharjee *et al.*, (1979) and Yadav *et al.*, (1984). The favorable effect of shallow planting in promoting vegetative growth of tuberose might be due to the better aeration, which promoted physiological activity of the bulb including uptake of nutrients and moisture.

#### *Spacing:*

Data on number of sprouts/ clump indicate that significantly higher number of sprouts (3.63 and 4.56) was obtained at wider spacing (20x20cm). The increase in number of sprouts/clump at wider spacing is in complete agreement with the work done by Arora and Khanna (1987) in gladiolus.

The data pertaining to number of leaves/ plant shows that wider spacing (20x20cm) increased number of leaves per plant (22.11 and 39.77) as compared to closer spacing. The reduced leaf number at closer spacing was also reported by Banker and Mukhopadhyay (1980) in tuberose.