



Research Note :

ASSESSMENT OF VEGETATIVE GROWTH AS INFLUENCED BY DIFFERENT DEPTH OF PLANTING AND SPACING IN TUBEROSE (*Polianthes tuberosa* Linn.) CV. DOUBLE

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ABSTRACT : A field trial consisting of three different planting depth (4.5, 5.5 and 6.5 cm) and two spacing (10 × 20 and 20 × 20 cm) was carried out Research Farm, under Crop Cafeteria Unit, Krishi Vigyan Kendra, Hastinapur, SVP University of Agriculture & Technology, Meerut (UP) India during the year 2014-15 and 2015-16. To assess the performance of these depths of planting and different spacing for improving the yield of tuberose. Only one cultivar applied namely Vaibhav were performed in a Randomized Complete Block Design (RCBD) with three replications. Maximum number of sprouts (4.53 and 6.16), number of leaves (27.32 and 42.56), length of longest leaf (53.15 and 59.42) and height of plant (44.62 and 51.47) at 65 and 85 days after planting were found under the treatment D₁, where the bulbs were planted at the depth of 4.5 cm. Wider spacing (20 × 20 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 plant. Therefore 4.5 cm depth of planting and 20 × 20 cm (S₂) spacing may be the recommended for better vegetative growth of tuberose especially double cultivar of Vaibhav.

Key words : *Tuberose, depth, spacing, bulb, clump and sprout.*

Among the ornamental bulbous plants, tuberose (*Polianthes tuberosa* Linn.) a member of Amaryllidaceae family occupies a very most selective and special position due to its sweet fragrance and long keeping quality of tuberose spikes (Sadhu and Bose, 6). It has gained considerable popularity and widely grown for aesthetic and commercial purposes. The flower spikes are excellent as cut flowers for table decoration bouquets and etc. Double cultivar mostly used of cut flowers is considered and their flower is used for garland making. Tuberose an important commercial flower crop of India. The commercial cultivation of tuberose is being carried out in several states of India e i., West Bengal, Karnataka, Tamil Nadu, Andhra Pradesh, Maharashtra, Haryana, Uttrakhand, Delhi and Uttar Pradesh. It is well known that agro techniques play an important role in the production of commercial flower such as tuberose. Since, the demand for cut and loose flowers of tuberose is a rapidly increasing in the current year, the performance of production techniques in tuberose crop on the commercial basis need to be

explored. In addition, the depth of planting as well as spacing also is known that to influence the vegetative growth in tuberose. Therefore, keeping these aspects in view of a trial was conducted 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.

This experiment was conducted at Research Farm, under crop cafeteria unit, Krishi Vigyan Kendra, Hastinapur, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut (UP) during the year summer season of 2014-15 to 2015-16. The experiment was laid out in a Randomized Complete Block Design (RCBD) with three depth of planting viz., 4.5 cm (D₁), 5.5 cm (D₂) and 6.5 cm (D₃) and two spacing 10 × 20 cm (S₁) and 20 × 20 cm (S₂). Altogether there were six treatment combination which were replicated thrice. Observation pertaining to different characters of vegetative growth was recorded a 65 and 85 days after planting. All recommended agronomic package and practice were followed to grown a successful crop. The observations on 12 characters were recorded from five randomly selected

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plants in each treatment of a replication except for the character days for fifty per cent sprouting. The bulbs were pre-treated with 0.15 per cent Hexaconazole 5 % SC uniformly to prevent any fungal infection. The bulbs were planted in last week of March 2014-15 as well as in 2015-16 at the spacing of 10 × 20 cm (S_1) and 20 × 20 cm (S_2) at 4.5, 5.5 and 6.5 cm depth. Uniform package of practices were followed throughout the experiment to grow the healthy crops. Routine intercultural operations were done as per the requirement. Observations were made on various vegetative growth and flowering characters as well as applied. The data collected were analyzed using statistical method as suggested by Gomez and Gomez (4).

aeration, which promoted physiological activity of the bulb including uptake of nutrients and moisture.

Spacing

Data on number of sprouts per clump indicated that significantly higher number of sprouts (3.87 at 65 days stage and 4.90 at 85 days stage) was obtained at wider spacing (20 × 20 cm). the increase in number of sprouts per clump at wider spacing is in complete agreement with the work done by Arora and Khanna (1) in gladiolus.

The data pertaining to number of leaves per plant show that wider spacing (20 × 20 cm) increase number of leaves per plant (22.88 at 65 days stage and 39.97 at 85 days stage) as compared to closer spacing (10 × 20

Table 1 : Vegetative growth as influenced by planting depth and spacing in tuberose cv. Double.

Treatments	No. of sprouts per clump		No. of leaves per plant		Length of longest leaf (cm)		Height of plant (cm)	
	Days after planting		Days after planting		Days after planting		Days after planting	
	65	85	65	85	65	85	65	85
Planting depth (cm)								
4.5 (D_1)	4.53	6.16	27.32	42.56	53.15	59.42	44.62	51.47
5.5 (D_2)	3.81	5.07	21.98	38.61	51.28	57.37	41.94	47.14
6.5 (D_3)	3.42	4.91	20.90	35.88	49.95	54.55	40.52	46.96
C.D. (P = 0.05)	0.12	0.13	0.28	2.53	0.52	0.43	0.59	0.48
Spacing (cm)								
10 × 20 (S_1)	3.58	4.47	21.49	38.62	51.26	57.27	42.84	50.12
20 × 20 (S_2)	3.87	4.90	22.88	39.97	51.85	57.84	43.08	50.87
C.D.(P = 0.05)	0.10	0.10	0.62	0.64	NS	NS	NS	NS

A detailed study of data pertaining to number of sprout per clump, number of leaves per plant, length of longest leaf and height of plant show that shallow depth of planting had significantly superior effect over the deep planting. The maximum number of sprouts per clump (4.53 at 65 days stage and 6.16 at 85 days stage), number of leaves per plant (27.32 at 65 days stage and 42.56 at 85 days stage), length of longest leaf (53.15 cm at 65 days stage and 59.42 cm at 85 days stage) and maximum height of plant (44.62 cm at 65 days stage and 51.47 cm at 85 days stage) were found that when the bulbs were planted at the depth of 4.5 cm. The similar effects were also reported by Rao *et al.* (5), Bhattacharjee *et al.* (3) and Yadav *et al.* (7). The favorable effect of shallow planting in promoting vegetative growth of tuberose might be due to better

cm). The reduced leaf number at closer spacing was also reported by Banker and Mukhopadhyay (2) in tuberose.

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