

Research Note :

RESPONSE OF NPK FERTILIZATION ON THE GROWTH PERFORMANCE OF TUBEROSE (*Polianthes tuberosa* L.) CV. SINGLE

G. R. Kishore*

Department of Horticulture, C.C.R.(P.G) College, Muzaffarnagar -251 001 (U.P.), India.

*E-mail: drgrkishore@gmail.com

ABSTRACT : A field trial with three levels of each of nitrogen, phosphorus and potash (50, 100 and 200 Kg/ha) by following a randomized block design was carried out at C.C.R. (P.G) College, Muzaffarnagar on tuberose cv. Single. The results revealed that application of higher dose of nitrogen resulted in profuse growth, while the doses of phosphorus and potash could not show significant differences in traits studied. Therefore, a fertilizer dose of 200kg, 100kg and 200 kg/ha of nitrogen, phosphorus and potash, respectively may be recommended for profitable cultivation of tuberose.

Keywords : Tuberose, nitrogen, phosphorus, potash, bulb, clump, sprouts.

Tuberose (*Polianthes tuberosa* L.) is one of the most important commercial flower crops of India. Its sweet scented waxy white flower are highly valued for preparing garlands, bouquets and for vase decoration. Flower of tuberose cv. Single is used for garland making and as cut flower too. It has been felt that nutrition plays an important role in the improvement of vegetative growth and yield in tuberose (Rathore and Singh, 6). In view of the above facts and paucity of

adequate evidence of this aspect the present study was undertaken.

The experiment was conducted at Horticultural Research Farm of C.C.R. (P.G) College, Muzaffarnagar during year 2011-2012. One third amount of nitrogen was applied as basal dressing, 1/3 was applied 30 days of planting of the bulbs and remaining 1/3 was applied as top dressing after 60 days of

Table 1 : Response of NPK fertilization on the growth performance of tuberose cv. Single.

Treatments	Height of plant (cm)	No. of sprouts per bulb	No. of leaves per clump	Length of longest leaf (cm)	Width of longest leaf (cm)
Nitrogen					
50 kg/ha (N1)	47.51	5.78	21.93	34.30	1.73
100 kg/ha (N2)	53.94	7.25	25.45	36.35	1.85
200 kg/ha (N3)	54.49	7.37	26.88	36.93	1.99
C.D. (P=0.05)	1.82	0.59	1.47	0.56	0.09
Phosphorus					
50 kg/ha (P1)	48.89	6.34	23.03	34.84	1.77
100 kg/ha (P2)	49.30	6.80	24.22	35.47	1.80
200 kg/ha (P3)	49.75	6.60	23.22	34.95	1.81
C.D. (P=0.05)	NS	NS	1.48	NS	NS
Potash					
50 kg/ha (K1)	49.18	6.32	23.31	34.92	1.78
100 kg/ha (K2)	49.77	6.60	23.91	35.63	1.82
200 kg/ha (K3)	49.01	6.52	23.05	35.03	1.75
C.D. (P=0.05)	NS	NS	0.33	NS	NS

DAP = Days after planting

planting of the bulbs. A basal dose of phosphorus (P_2O_5) and potash (K_2O) each at the rate of 50, 100 and 200 kg/ha was applied at the time of planting of the bulbs. The field experiment was laid out in a factorial randomized block design and treatments were replicated thrice. Weeding, hoeing, irrigation and other agronomic practices were done whenever necessary. Observations on growth parameters were recorded at 100 days after planting of bulbs and average data were analyzed statistically.

The data presented in Table 1 clearly indicated that the application of NPK levels affected growth of tuberose appreciably. But nitrogen @ 200 kg/ha (N_3) was proved to be the best for attaining the maximum plant height (54.49 cm) and largest number of sprouts/clump (7.37). These results are in support of Bankar (2) and Deshwal *et al.* (3). Doses of phosphorus and potash could not show significant effects on plant height and number of sprouts.

The higher dose of nitrogen (200 kg/ha), phosphorus (100kg/ha) and potash (100 kg/ha) resulted in the largest number of leaves/plant (26.88, 24.22 and 23.91, respectively). The findings are in conformity with the observations made by Jana *et al.* (4). Length and width of the longest leaf (36.93cm and 1.99 cm, respectively) at 100 DAP was maximum with 200 kg/ha nitrogen, which are in support of Amaki and Hagiya (1). The favourable effect of nitrogen in promoting length of the leaf might be due to the fact

that nitrogen application increased more metabolites transport for growth (Marchner, 5).

REFERENCES

1. Amaki, W. and Hagiya, K. (1960). Studies on fertilizer supply to tulips. The effect of varied amounts of three nutrient elements on the growth of plants and the yield of bulbs. *J. Hort. Asss. Japan*, **29** :157-162.
2. Bankar, G.J. (1988). Nutritional studies in tuberose (*Polianthes tuberosa*). *Prog. Hort.* , **20** (1-2) : 49-52
3. Deshwal, K.S., Patil, V.K. and Anserwadekar, K.W. (1983). Nutritional and plant population studies in gladiolus. *Indian J. Hort.*, **40** (3&4) : 245-259.
4. Jana , B.K., Roy, S. and Bose, T. K. (1974). Studies on the nutrition of ornamental plants. III. Effect of nutrition on growth of flowering of dahlia and tuberose. *Indian J. Hort.* **21** (2): 185-85.
5. Marchner, H. (1983). Introduction to the mineral nutrition of plants. *Handb, Pflpby. Biol.*, **154** : 31-38.
6. Rathore, A.C. and Singh, J.N. (2013). Effect of graded levels of nitrogen on production of flower, oil and bulb of tuberose (*Polianthes tuberosa* L.). *HortFlora Res. Spectrum*, **2** (1) : 60-63

Citation : Kishore G.R. (2015). Response of NPK fertilization on the growth performance of tuberose (*Polianthes tuberosa* L.) cv. Single. *HortFlora Res. Spectrum*, **4**(3) : 291-292