

2. Crop Production

2.1 Project 02 (ICAR Project Code: IXX08409): Production Technology of Tuberose

2.1.1 Influence of Bulb Grades on Growth and Flowering in Tuberose

An experiment was conducted to find out the influence of different bulb sizes of tuberose bulbs on growth and flowering characteristics. Study was conducted using cultivar Phule Rajani to know the response. Four bulb sizes (above 3.5 cm in diameter, 2.5 to 3.5 in diameter, 1.5 to 2.5 cm in diameter and below 1.5 cm in diameter) and mother bulb of tuberose (Cv. Phule Rajani) were used to study the growth and flowering characteristics under the field condition at research farm of ICAR-Directorate of Floricultural Research, Pune (Table 2.1.1). The study revealed that increase in bulb size resulted in increase in plant height, number of leaves per clump, spike length, rachis length, number of florets per spike and floret length. Significantly longer rachis length and number of leaves per clump was observed in the plants with bulb size measuring above 3.5 cm in diameter. The longer spike length (65.20 cm) and more number of florets per spike (35.50) was observed in the bulb size measuring more than 3.5 cm in diameter followed by the bulb size measuring 2.5 to 3.5 cm in diameter (61.67 cm, 31.25 respectively) which was significantly higher than bulb size measuring less than 2.5 cm in diameter and mother bulb. There is no significant difference in plant height, floral diameter and floret length was observed due to different bulb size of tuberose. Hence, large size bulbs measuring more than 3.5 cm in diameter and/or 2.5 to 3.5 cm in diameter are optimum for planting of tuberose.

Table 2.1.1. Influence of bulb grades on growth and flowering in tuberose (Phule Rajani)

Bulb diameter	Plant height (cm)	No. of leaves per clump	Spike length (cm)	Rachis length (cm)	No. of florets per spike	Floral diameter (cm)	Floret length (cm)
Above 3.5	36.59	39.15 ^c	65.20 ^c	30.43 ^d	35.50 ^c	3.85	5.52
3.5 to 2.5	35.48	26.40 ^{ab}	61.67 ^c	25.06 ^c	31.25 ^{bc}	3.77	5.18
2.5 to 1.5	33.95	22.35 ^a	55.15 ^b	19.76 ^b	29.55 ^b	3.81	5.09
Below 1.5	32.51	17.25 ^a	45.76 ^a	17.28 ^a	21.18 ^a	3.77	4.84
Mother Bulb	32.39	35.60 ^{bc}	50.92 ^{ab}	15.40 ^a	28.75 ^b	3.60	5.00
S.E.M.	1.51	3.25	1.75	0.78	1.84	0.16	0.25
LSD (p<0.05):	NS	9.81	5.26	2.34	5.56	NS	NS

2.1.2 Evaluation of Tuberose Cultivars

Evaluation of tuberose cultivars under Pune conditions was done for bulb production parameters, the cultivar Arka Nirantara recorded maximum average weight of bulb (37.01 g), average diameter of bulb (3.29 cm), total weight of bulbs per clump (361.53 g), average weight of bulblets (4.53 g) and total weight of bulblets per plant (56.0 g). However, Cv. Phule Rajani recorded maximum number of bulbs per clump (23.87) followed by Cv. Hyderabad Single (18.00). In most of the vegetative and bulb production parameters Cv. Sikkim Selection recorded minimum fresh weight of leaves (119.93), width of leaves (1.21 cm), number of tillers per clump (5.33), number of bulbs per clump (9.67), average weight of bulb (15.41 g), total weight of bulbs per clump (g) and total weight of bulblets per clump (g). However Sikkim Selection yielded maximum number of bulblets per plant (24.27) followed by Cv. Arka Nirantara (23.87). On the basis of vegetative and bulbs parameters, Cv. Arka Nirantara performed well under the climatic conditions of Pune (Table 2.1.2).

Table 2.1.2. Evaluation of tuberose cultivars under Pune conditions (10 months DAP)

Cultivars	Plant height (cm)	No. of leaves per plant	Fresh wt of leaves	Width of leaves	No of tillers per clump	No. of bulbs per plant	Avg wt of bulb	Avg diam of bulb (cm)	Total wt of bulb per plant (g)	No. of Bulblets per plant	Avg wt of bulblets (g)	Total wt of bulblets per plant (g)
Mexican Single	55.85	162.47	346.27	1.48	18.60	11.60	16.13	2.36	234.07	20.27	4.05	54.33
Sikkim Selection	49.91	62.53	119.93	1.21	5.33	9.67	15.41	2.46	201.47	24.27	2.31	38.80
Shringar	55.07	118.60	242.40	1.58	11.60	13.73	17.65	2.52	238.07	13.20	2.55	25.73
Phule Rajani	50.21	87.13	287.53	1.67	13.33	23.87	24.67	2.94	356.47	18.27	3.08	31.53
Hyderabad Single	49.93	85.13	138.80	1.45	11.33	18.00	20.44	2.63	208.07	20.13	3.65	49.73
Prajwal	62.27	108.53	311.93	2.35	11.40	14.73	28.56	3.18	283.67	15.87	3.52	39.93
Arka Nirantara	60.62	119.27	284.33	1.65	11.00	12.87	37.01	3.29	361.53	23.87	4.53	56.00
S.E.M.	1.93	7.00	25.96	0.08	0.67	2.27	3.35	0.10	20.02	3.69	0.41	8.80
LSD (p<0.05)	5.85	21.22	78.74	0.24	2.04	NS	10.16	0.31	60.72	11.21	1.25	NS