

## Original Research Article

### Performance of Tuberose (*Polianthes tuberosa* L.) varieties in Konkan Region

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#### ABSTRACT

The experiment was conducted at College of Horticulture, Dapoli, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist- Ratnagiri (M.S.) during 2019-20 to assess the performance of tuberose (*Polianthes tuberosa* L.) varieties in Konkan region. The varieties were studied for various vegetative, flowering and yield attributes. The experiment was conducted in a randomized block design with three replications. In this experiment 9 tuberose varieties were studied viz., Local Single, Prajwal, Arka Nirantara, Phule Rajani, Shringar, Local Double, Hyderabad Double, Suvasini, Phule Rajat. Results revealed that there was a significant variation among the varieties for various attributes. Out of the nine varieties Prajwal recorded significantly maximum plant height (75.67 cm), number of leaves (22.47), leaf area (72.43 cm<sup>2</sup>), leaf area index (2.41), dry matter of leaves (8.77 g), dry matter of spikes (13.71 g), maximum spike length (99.83 cm), number of florets per spike (39.80), diameter of flower stalk (5.53 mm), rachis length (36.19 cm), length of floret (6.90 cm), number of spikes per plant (1.93), spikes per plot (61.33), yield of flowers per plot (5.87 kg) and per hectare (10771.20 kg), yield of bulblets per plot (762.00), weight of bulb (87.67 g) and diameter of bulb (63.60 mm).

#### Keywords

Tuberose, Varietal performance, Spikes, Loose flowers, Bulbs

#### Introduction

Tuberose (*Polianthes tuberosa* L.) commonly known as Nishigandha, Rajanigandha, Gulchhadi and Sugandharaj etc. (Anon., 1982) is the ornamental bulbous plant which belongs to the family Amaryllidaceae. It is a native of Mexico (Trueblood, 1973) spreads to the different parts of the world during 16<sup>th</sup> century. The generic name Polianthesis derived from Greek word 'Polis' means white

and 'Anthos' means flower. Tuberose occupies very selective and special position and has great economic potential for cut flower trade and essential oil industry. Spikes of tuberose are used as cut flower in vase decoration and bouquets, while the individual flowers (florets) are used for making *venis*, *gajaras*, garlands, floral ornaments and buttonholes besides extraction of essential oils for perfumery and cosmetic industries. In India the commercial cultivation of tuberose

is confined mainly to West Bengal, Karnataka, Tamil Nadu, Maharashtra and Andhra Pradesh. Its cultivation in India is gaining popularity due to ease of cultivation, low input, wide adaptability, multipurpose use and higher return. This traditional flower crop of India blooms throughout the year. Tuberose is half hardy, perennial bulbous plant. Bulbs are made of scales and leaf bases and stem remain concealed within scales. Roots are adventitious and shallow. Leaves are linear, long, grass like foliage and bright green. Tuberose spikes bear pairs of florets which open acropetally (i.e., from base to top of the spike). Tuberose is cross pollinated crop. Flowers have funnel shaped perianth and are fragrant, waxy white, about 25 mm long. Stamens are 6 in number, ovary 3 locular, ovules numerous and fruits are capsule (Anon., 2006). There are 4 types of tuberose named on the basis of number of rows of petals they bear. They are Single, Semi-double, Double and Variegated.

Agro climatic conditions and soils of Konkan region are suitable for commercial cultivation of tuberose therefore it can be commercial flower crop in future. In Konkan region major cities like Mumbai, Thane, Palghar and Goa are major markets for flowers. In this context efforts were made to identify the suitable variety for commercial cultivation of tuberose under Konkan agro-climatic conditions.

### **Materials and Methods**

The experiment was conducted at College of Horticulture, Dapoli, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist-Ratnagiri (M.S.) during 2019-20 to assess the performance of tuberose (*Polianthes tuberosa* L.) varieties in Konkan region. The experiment was conducted in a randomized block design with three replications. In this experiment 9 tuberose varieties were studied viz., Local Single, Prajwal, Arka Nirantara,

Phule Rajani, Shringar, Local Double, Hyderabad Double, Suvasini, Phule Rajat. The land was brought to a fine tilth and levelled properly. The raised beds of 2.1 m × 1.8 m were prepared and bulbs were planted at the depth of 5 cm at spacing of 30 cm × 30 cm in the month of June. Fertilizers were applied at the rate of 200 kg Nitrogen, 150 kg Phosphorous and 200 kg Potassium per hectare in the form of Urea, Single Super Phosphate and Muriate of Potash. Whole dose of phosphorous, potassium and 1/3<sup>rd</sup> dose of Nitrogen was applied at the time of planting. Remaining 2/3<sup>rd</sup> Nitrogen was applied as top dressing at 30, 60 and 90 days after planting in equal split doses. The recommended cultural practices (Manuring, irrigation, weeding, earthing up, staking, plant protection, etc.) were followed uniformly to experimental plots. The observations on vegetative, flowering and yield attributes were recorded on randomly selected five plants. Statistical analysis of the data was carried out by standard method of analysis of variance as given by Panse and Sukhatme (1985).

### **Results and Discussion**

#### **Vegetative parameters**

The data pertaining to vegetative parameters in different tuberose varieties are represented in Table 1. The yield of plant is influenced by the vigour of plant where the plant height plays an important role. Maximum plant height (75.67 cm) was observed in V<sub>2</sub> Prajwal followed by V<sub>8</sub> (73.13cm), V<sub>4</sub> (70.30cm), V<sub>7</sub> (66.93 cm), V<sub>9</sub> (63.75cm), V<sub>5</sub> (60.35cm), V<sub>3</sub> (58.43cm) and V<sub>6</sub> (55.88cm) whereas minimum plant height (42.38 cm) was observed in V<sub>1</sub> Local Single. Leaves are the photosynthetic site of the plant which is directly related to the yield. Maximum number of leaves (22.47) were observed in V<sub>2</sub> Prajwal which was at par with V<sub>9</sub> Phule Rajat (21.93) and V<sub>8</sub> Suvasini (21.53) and

followed by V<sub>4</sub> (21.20), V<sub>7</sub> (20.00), V<sub>5</sub> (19.33), V<sub>3</sub> (18.60) and V<sub>6</sub> (17.60) whereas minimum number of leaves (16.47) were observed in V<sub>1</sub> Local Single. The results obtained are in accordance with findings of Mahawer *et al.*, (2013). Leaf area is also important growth parameter as it has direct relationship with interception of light and photosynthesis and ultimately with overall growth and development of plant. Significantly maximum leaf area (72.43 cm<sup>2</sup>) was observed in V<sub>2</sub> Prajwal followed by V<sub>9</sub> (66.77cm<sup>2</sup>), V<sub>8</sub> (54.27cm<sup>2</sup>), V<sub>4</sub> (49.17cm<sup>2</sup>), V<sub>7</sub> (47.37cm<sup>2</sup>), V<sub>5</sub> (46.60cm<sup>2</sup>), V<sub>3</sub> (43.60cm<sup>2</sup>) and V<sub>6</sub> (43.03cm<sup>2</sup>) while minimum leaf area (39.83cm<sup>2</sup>) was observed in V<sub>1</sub> Local Single. Significantly maximum leaf area index (2.41) was observed in V<sub>2</sub> Prajwal followed by V<sub>9</sub> (2.23), V<sub>8</sub> (1.81), V<sub>4</sub> (1.64), V<sub>7</sub> (1.58), V<sub>5</sub> (1.55), V<sub>3</sub> (1.45) and V<sub>6</sub> (1.43) while minimum leaf area index (1.33) was observed in V<sub>1</sub> Local Single. The results obtained are in agreement with those reported by the Sateesha (2004). Significantly maximum dry matter of leaves (8.77 g) was observed in V<sub>2</sub> Prajwal variety which was at par with V<sub>8</sub> Suvasini (8.56 g), V<sub>9</sub> Phule Rajat (8.49 g) and V<sub>4</sub> Phule Rajani (8.23 g) and followed by V<sub>5</sub> (7.82 g), V<sub>7</sub> (7.81 g), V<sub>3</sub> (6.69 g), and V<sub>6</sub> (6.31 g) whereas minimum dry matter of leaves (5.28 g) was recorded in V<sub>1</sub> Local Single. Significantly maximum dry matter of spikes (13.71 g) was recorded in V<sub>2</sub> Prajwal followed by V<sub>8</sub> (13.31 g), V<sub>6</sub> (12.21 g), V<sub>7</sub> (8.64 g), V<sub>1</sub> (8.24 g), V<sub>9</sub> (7.86 g), V<sub>5</sub> (7.66 g) and V<sub>4</sub> (7.60 g) whereas minimum dry matter of spike (7.21 g) was recorded in V<sub>3</sub> Arka Nirantara. The results obtained are in accordance with those reported by the Singh and Dakho (2017).

### **Flowering parameters**

The data pertaining to flowering parameters in different tuberose varieties are represented in Table 2. The earliest commencement of

flowering (107.67) was observed in V<sub>1</sub> Local Single followed by V<sub>4</sub> (111.00), V<sub>2</sub> (113.33), V<sub>9</sub> (115.67), V<sub>3</sub> (116.67), V<sub>6</sub> (117.67), V<sub>5</sub> (118.00) and V<sub>7</sub> (121.00). The maximum number of days (122.00) required for commencement of flowering were observed in V<sub>8</sub> Suvasini. The results obtained are in agreement with those reported by the Mahawer *et al.*, (2013). Minimum number of days (117.67) for 50% flowering were required by V<sub>4</sub> Phule Rajani followed by V<sub>3</sub> and V<sub>6</sub> (122.67), V<sub>9</sub> (123.00), V<sub>2</sub> (123.33), V<sub>5</sub> (124.67), V<sub>7</sub> (125.00) and V<sub>8</sub> (127.00). However, maximum number of days for 50% flowering (127.67) were required by V<sub>1</sub> Local Single. Similar results were reported by Sateesha (2004). Spike length is an important parameter as it judges its use as a quality cut flower. The maximum spike length (99.83 cm) was observed in V<sub>2</sub> Prajwal followed by V<sub>8</sub> (94.36 cm), V<sub>6</sub> (93.58 cm), V<sub>7</sub> (88.91 cm), V<sub>1</sub> (87.01 cm), V<sub>9</sub> (82.02 cm), V<sub>3</sub> (76.87 cm) and V<sub>4</sub> (74.96 cm) whereas minimum spike length (73.73 cm) was observed in V<sub>5</sub> Shringar. The results obtained are in accordance with those reported by the Mahawer *et al.*, (2013). A significant variation among different tuberose varieties for number of florets per spike may be related to genetic differences in the varieties and also due to length of spike. The maximum number of florets per spike (39.80) was observed in V<sub>2</sub> Prajwal which was at par with V<sub>4</sub> Phule Rajani (39.00) and followed by V<sub>7</sub> (38.20), V<sub>9</sub> (37.27), V<sub>5</sub> (37.07), V<sub>8</sub> (36.40), V<sub>6</sub> (36.07) and V<sub>3</sub> (32.93) whereas minimum number of florets per spike (30.27) were recorded in V<sub>1</sub> Local Single. Krishnamoorthy (2014) found similar results at Pudukkottai district of Tamil Nadu in respect of number of florets per spike. Maximum diameter of flower stalk (5.53 mm) was recorded in V<sub>2</sub> Prajwal which was at par with V<sub>4</sub> Phule Rajani (5.31 mm) and V<sub>9</sub> Phule Rajat (5.17 mm) and followed by V<sub>8</sub> (4.89 mm) and V<sub>5</sub> (4.84 mm) whereas minimum flower stalk diameter (4.42 mm)

was recorded in V<sub>1</sub> Local Single which was at par with V<sub>3</sub> Arka Nirantara (4.47 mm), V<sub>6</sub> Local Double (4.53 mm) and V<sub>7</sub> Hyderabad Double (4.71 mm). Similar results were reported by Gurav and Katwate (1998 a).

The maximum rachis length (36.19 cm) was observed in V<sub>2</sub> Prajwal which was at par with V<sub>7</sub> Hyderabad Double (35.91 cm), V<sub>9</sub> Phule Rajat (35.48 cm), V<sub>6</sub> Local Double (34.96 cm) and V<sub>4</sub> Phule Rajani (33.29 cm) and followed by V<sub>8</sub> (33.00 cm), V<sub>5</sub> (30.69 cm).

The minimum rachis length (26.38 cm) was observed in V<sub>3</sub> Arka Nirantara variety which was at par with V<sub>1</sub> Local Single (27.64 cm). The results obtained are in agreement with those reported by the Prakash *et al.*, (2015).

Maximum Length of floret (6.90 cm) was observed in V<sub>2</sub> Prajwal followed by V<sub>4</sub> (6.41 cm), V<sub>8</sub> (6.33 cm), V<sub>5</sub> (6.30 cm) and V<sub>7</sub> (6.19 cm) whereas minimum length of floret (5.59 cm) was recorded in V<sub>9</sub> Phule Rajat which was at par with V<sub>1</sub> Local Single (5.79 cm), V<sub>3</sub> Arka Nirantara (5.83 cm) and V<sub>6</sub> Local Double (5.85 cm). Similar results were reported by Rachana *et al.*, (2013).

### **Yield parameters**

The data pertaining to yield parameters in different tuberose varieties are represented in Table 3. Maximum number of spikes per plant (1.93) were recorded in V<sub>2</sub> Prajwal followed by V<sub>4</sub> (1.73), V<sub>8</sub> (1.67), V<sub>7</sub> (1.53), V<sub>9</sub> (1.47) and V<sub>3</sub> (1.40) whereas minimum number of spikes per plant (1.20) were recorded in V<sub>1</sub> Local Single which was at par with V<sub>6</sub> Local Double (1.27) and V<sub>5</sub> Shringar (1.33). These results are in conformity with Naik *et al.*, (2018). The variation in the production of number of spikes per plot might be due to more number of leaves per plant which would have resulted in production and accumulation of maximum

amount of photosynthates which ultimately results in production of more number of spikes. The maximum number of spikes per plot (61.33) were observed in V<sub>2</sub> Prajwal which was at par with V<sub>4</sub> Phule Rajani (56.33) and followed by V<sub>8</sub> (53.33), V<sub>7</sub> (51.67) and V<sub>9</sub> (49.33) whereas minimum number of spikes per plot (44.67) were observed in V<sub>1</sub> Local Single which was at par with V<sub>6</sub> Local Double (45.33), V<sub>5</sub> Shringar (46.67) and V<sub>3</sub> Arka Nirantara (47.33).

These results are supported by Prashanta *et al.*, (2016). Maximum yield of flowers (5.87 kg/plot) was recorded in V<sub>2</sub> Prajwal followed by V<sub>4</sub> (4.32 kg/plot), V<sub>7</sub> (4.18 kg/plot), V<sub>8</sub> (4.07 kg/plot), V<sub>9</sub> (3.92 kg/plot), V<sub>6</sub> (3.80 kg/plot), V<sub>5</sub> (2.67 kg/plot) and V<sub>3</sub> (2.60 kg/plot) while minimum yield of flowers (1.62 kg/plot) was recorded in V<sub>1</sub> Local Single.

The maximum loose flowers yield per hectare was recorded in V<sub>2</sub> Prajwal (10771.20 kg/ha) followed by V<sub>4</sub> (7931.52 kg/ha), V<sub>7</sub> (7680.60 kg/ha), V<sub>8</sub> (7472.52 kg/ha), V<sub>9</sub> (7203.24 kg/ha), V<sub>6</sub> (6976.80 kg/ha), V<sub>5</sub> (4902.12 kg/ha) and V<sub>3</sub> (4767.48 kg/ha) while minimum loose flowers yield (2974.32 kg/ha) was recorded in V<sub>1</sub> Local Single. The results obtained are in accordance with Naik *et al.*, (2018). Variation in number of bulb might be due to the genetic characters of different varieties taken for study and the prevailing environment of Konkan.

The maximum yield of bulbs per plot (172.67) was recorded in V<sub>2</sub> Prajwal which was at par with V<sub>4</sub> Phule Rajani (166.33) and V<sub>9</sub> Phule Rajat (156.67) and followed by V<sub>8</sub> (139.33), V<sub>7</sub> (133.67), V<sub>3</sub> (126.00) and V<sub>5</sub> (117.67) whereas minimum yield of bulbs per plot (92.00) was recorded in V<sub>1</sub> Local Single which was at par with V<sub>6</sub> Local Double (106.67). Similar results were reported by Ramchandrudu and Thangam (2009).

**Table.1** Performance of tuberose varieties with respect to vegetative parameters

Treatment	Plant height (cm)			
	30 DAP	60 DAP	90 DAP	120 DAP
V <sub>1</sub> : Local Single	16.30	32.21	38.27	42.38
V <sub>2</sub> : Prajwal	26.43	57.68	72.91	75.67
V <sub>3</sub> : Arka Nirantara	17.02	42.34	54.82	58.43
V <sub>4</sub> : Phule Rajani	23.31	51.88	63.67	70.30
V <sub>5</sub> : Shringar	18.12	50.36	56.64	60.35
V <sub>6</sub> : Local Double	14.21	39.59	47.64	55.88
V <sub>7</sub> : Hyderabad Double	21.33	53.16	61.13	66.93
V <sub>8</sub> : Suvasini	24.21	57.47	69.98	73.13
V <sub>9</sub> : Phule Rajat	18.56	52.27	58.93	63.75
Mean	<b>19.94</b>	<b>48.55</b>	<b>58.22</b>	<b>62.98</b>
S.E m±	<b>0.25</b>	<b>0.19</b>	<b>0.16</b>	<b>0.23</b>
CD @ 5%	<b>0.73</b>	<b>0.58</b>	<b>0.47</b>	<b>0.69</b>
Treatment	Number of leaves (no.)			
	30 DAP	60 DAP	90 DAP	120 DAP
V <sub>1</sub> : Local Single	9.27	13.47	15.47	16.47
V <sub>2</sub> : Prajwal	15.07	19.07	21.47	22.47
V <sub>3</sub> : Arka Nirantara	10.93	14.73	16.93	18.60
V <sub>4</sub> : Phule Rajani	12.93	17.40	20.13	21.20
V <sub>5</sub> : Shringar	11.33	16.33	18.27	19.33
V <sub>6</sub> : Local Double	10.87	14.53	16.53	17.60
V <sub>7</sub> : Hyderabad Double	12.40	16.80	18.80	20.00
V <sub>8</sub> : Suvasini	13.80	18.13	20.53	21.53
V <sub>9</sub> : Phule Rajat	14.67	18.60	20.93	21.93
Mean	<b>12.36</b>	<b>16.56</b>	<b>18.79</b>	<b>19.90</b>
S.E m±	<b>0.35</b>	<b>0.38</b>	<b>0.40</b>	<b>0.36</b>
CD @ 5%	<b>1.05</b>	<b>1.13</b>	<b>1.21</b>	<b>1.09</b>

Treatment	Leaf area (cm <sup>2</sup> )	Leaf area index	Dry matter of leaves	Dry matter of spikes
V <sub>1</sub> : Local Single	39.83	1.33	5.28	8.24
V <sub>2</sub> : Prajwal	72.43	2.41	8.77	13.71
V <sub>3</sub> : Arka Nirantara	43.60	1.45	6.69	7.21
V <sub>4</sub> : Phule Rajani	49.17	1.64	8.23	7.60
V <sub>5</sub> : Shringar	46.60	1.55	7.82	7.66
V <sub>6</sub> : Local Double	43.03	1.43	6.31	12.21
V <sub>7</sub> : Hyderabad Double	47.37	1.58	7.81	8.64
V <sub>8</sub> : Suvasini	54.27	1.81	8.56	13.31
V <sub>9</sub> : Phule Rajat	66.77	2.23	8.49	7.86
Mean	<b>51.45</b>	<b>1.71</b>	<b>7.55</b>	<b>9.60</b>
S.E m±	<b>0.46</b>	<b>0.02</b>	<b>0.20</b>	<b>0.08</b>
CD @ 5%	<b>1.39</b>	<b>0.05</b>	<b>0.59</b>	<b>0.25</b>

**Table.2** Performance of tuberosc varieties with respect to flowering parameters

Treatment	Days for commencement of flowering	Days for 50 % flowering (no.)	Spike length (cm)	Number of florets per spike (no.)
<b>V<sub>1</sub>: Local Single</b>	107.67	127.67	87.01	30.27
<b>V<sub>2</sub>: Prajwal</b>	113.33	123.33	99.83	39.80
<b>V<sub>3</sub>: Arka Nirantara</b>	116.67	122.67	76.87	32.93
<b>V<sub>4</sub>: Phule Rajani</b>	111.00	117.67	74.96	39.00
<b>V<sub>5</sub>: Shringar</b>	118.00	124.67	73.73	37.07
<b>V<sub>6</sub>: Local Double</b>	117.67	122.67	93.58	36.07
<b>V<sub>7</sub>: Hyderabad Double</b>	121.00	125.00	88.91	38.20
<b>V<sub>8</sub>: Suvasini</b>	122.00	127.00	94.36	36.40
<b>V<sub>9</sub>: Phule Rajat</b>	115.67	123.00	82.02	37.27
<b>Mean</b>	<b>115.89</b>	<b>123.74</b>	<b>85.70</b>	<b>36.33</b>
<b>S.E m±</b>	<b>1.03</b>	<b>1.15</b>	<b>0.34</b>	<b>0.37</b>
<b>CD @ 5%</b>	<b>3.07</b>	<b>3.44</b>	<b>1.01</b>	<b>1.12</b>

Treatment	Diameter of flower stalk (mm)	Rachis length (cm)	Length of floret (cm)
<b>V<sub>1</sub>: Local Single</b>	4.42	27.64	5.79
<b>V<sub>2</sub>: Prajwal</b>	5.53	36.19	6.90
<b>V<sub>3</sub>: Arka Nirantara</b>	4.47	26.38	5.83
<b>V<sub>4</sub>: Phule Rajani</b>	5.31	33.29	6.41
<b>V<sub>5</sub>: Shringar</b>	4.84	30.69	6.30
<b>V<sub>6</sub>: Local Double</b>	4.53	34.96	5.85
<b>V<sub>7</sub>: Hyderabad Double</b>	4.71	35.91	6.19
<b>V<sub>8</sub>: Suvasini</b>	4.89	33.00	6.33
<b>V<sub>9</sub>: Phule Rajat</b>	5.17	35.48	5.59
<b>Mean</b>	<b>4.87</b>	<b>32.61</b>	<b>6.13</b>
<b>S.E m±</b>	<b>0.14</b>	<b>1.02</b>	<b>0.12</b>
<b>CD @ 5%</b>	<b>0.41</b>	<b>3.06</b>	<b>0.36</b>

**Table.3** Performance of tuberose varieties with respect to yield parameters

Treatment	Number of spikes/ plant (no.)	Number of spikes/ plot (no.)	Yield of flowers (kg/plot)	Yield of flowers (kg/ha)
V <sub>1</sub> : Local Single	1.20	44.67	1.62	2974.32
V <sub>2</sub> : Prajwal	1.93	61.33	5.87	10771.20
V <sub>3</sub> : Arka Nirantara	1.40	47.33	2.60	4767.48
V <sub>4</sub> : Phule Rajani	1.73	56.33	4.32	7931.52
V <sub>5</sub> : Shringar	1.33	46.67	2.67	4902.12
V <sub>6</sub> : Local Double	1.27	45.33	3.80	6976.80
V <sub>7</sub> : Hyderabad Double	1.53	51.67	4.18	7680.60
V <sub>8</sub> : Suvasini	1.67	53.33	4.07	7472.52
V <sub>9</sub> : Phule Rajat	1.47	49.33	3.92	7203.24
Mean	<b>1.50</b>	<b>50.67</b>	<b>3.67</b>	<b>6742.20</b>
S.E m±	<b>0.06</b>	<b>1.96</b>	<b>0.03</b>	<b>50.73</b>
CD @ 5%	<b>0.19</b>	<b>5.87</b>	<b>0.08</b>	<b>152.09</b>
Treatment	Yield of bulbs/plot (no.)	Yield of bulblets/plot (no.)	Weight of bulb (g)	Diameter of bulb (mm)
V <sub>1</sub> : Local Single	92.00	569.33	51.93	48.04
V <sub>2</sub> : Prajwal	172.67	762.00	87.67	63.60
V <sub>3</sub> : Arka Nirantara	126.00	671.67	34.07	45.01
V <sub>4</sub> : Phule Rajani	166.33	705.00	51.80	48.84
V <sub>5</sub> : Shringar	117.67	722.33	43.20	51.10
V <sub>6</sub> : Local Double	106.67	511.67	47.33	47.76
V <sub>7</sub> : Hyderabad Double	133.67	637.67	76.47	61.57
V <sub>8</sub> : Suvasini	139.33	486.00	38.60	49.31
V <sub>9</sub> : Phule Rajat	156.67	618.67	67.80	52.80
Mean	<b>134.56</b>	<b>631.59</b>	<b>55.43</b>	<b>52.00</b>
S.E m±	<b>5.53</b>	<b>8.92</b>	<b>1.10</b>	<b>1.03</b>
CD @ 5%	<b>16.57</b>	<b>26.73</b>	<b>3.31</b>	<b>3.10</b>

Maximum yield of bulblets per plot (762.00) was recorded in V<sub>2</sub> Prajwal followed by V<sub>5</sub> (722.33), V<sub>4</sub> (705.00), V<sub>3</sub> (671.67), V<sub>7</sub> (637.67), V<sub>9</sub> (618.67), V<sub>1</sub> (569.33) while minimum yield of bulblets per plot (486.00) was recorded in V<sub>8</sub> Suvasini which was at par with V<sub>6</sub> Local Double (511.67).

Similar results were reported by Naik *et al.*, (2018). Maximum weight of bulb (87.67 g) was recorded in V<sub>2</sub> Prajwal followed by V<sub>7</sub> (76.47 g), V<sub>9</sub> (67.80 g), V<sub>1</sub> (51.93 g), V<sub>4</sub>

(51.80 g), V<sub>6</sub> (47.33 g), V<sub>5</sub> (43.20 g), V<sub>8</sub> (38.60 g) whereas minimum weight of bulb (34.07 g) was recorded in V<sub>3</sub> Arka Nirantara. The maximum diameter of bulb (63.60 mm) was recorded in V<sub>2</sub> Prajwal which was at par with V<sub>7</sub> Hyderabad Double (61.57 mm) and followed by V<sub>9</sub> (52.80 mm), V<sub>5</sub> (51.10 mm), V<sub>8</sub> (49.31 mm) and V<sub>4</sub> (48.84 mm) while minimum diameter of bulb (45.01 mm) was recorded in V<sub>3</sub> Arka Nirantara which was at par with V<sub>6</sub> Local Double (47.76 mm) and V<sub>1</sub> Local Single (48.04mm). The results obtained

are in accordance with those reported by the Chaturvedi *et al.*, (2014).

From the present study, it can be concluded that among the nine genotypes Prajwal followed by Phule Rajani and Hyderabad Double are suitable for cultivation in Konkan region due to their high yielding potential. Varieties which perform well in one region may not do well in other regions of varying climatic conditions. Therefore, evaluation of variety becomes a prime consideration before suggesting it for a particular region.

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