

Studies on Growth Behaviour, Flower Quality and Commercialization of Floribunda Rose Varieties

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Abstract— Present studies were carried on growth, flowering of commercial varieties leading to earning for plants in all aspects of beautification in landscaping. Floribunda varieties of roses gave outstanding performance in these investigations. Growth behaviour and flowers quality were found most suitable in central Uttar Pradesh. All were found useful in Commercial venture which has been recommended for earning from nurseries and industrial products. In findings of present trails, growth parameters of Neelakanti, Varsha, Vichitra, Zorina, Zambra and Illumination treatments were found Vigorous. In promising aspects flowering, shoot growth were found significant in Zambra, Neelambari, Bonanza and Illumination treatments which produced considerable more number of flowers per plant than other varieties.

Keywords— Floribunda, varieties, landscaping, products, quality, valentine.

I. INTRODUCTION

Rose plants and flowers have a considerable impact in hortibusiness under floriculture industry [2], [3]. From beginning of last century rose varieties got a great incentive for their use in decoration for beautification in certain occasions alongwith spiritual symbols [4], [5]. However, rose flowers were used in worshipping in temples and religious places [5]. In modern period people had an affinity for new varieties and developed a lot of interest for quality flower production to export them in foreign markets. With this effect states like Karnataka, Delhi achieved a great success in export of products under floriculture industry [10-12]. Plants and flowers of Hybrid Tea, Floribunda, Miniature etc varieties are grown with proper technology and rose plants and flowers have a considerable impact in hortibusiness under floriculture industry [2], [3]. From beginning in India rose varieties got a great popularity for their use in decoration and beautification in certain occasions [4], [5]. In modern period people had developed a lot of interest for quality flower production for making products under entrepreneurial Venture in India.

Work done and scope: Among cultural flowers, rose is having top position in the world (Pal, 2003). It has a long list of its uses and products which have a great potential for variety of products in industry [6-8]. Rose flower buds and fresh flowers are more remunerative in certain occasions and functions [14-16]. That is why it is known that rose plant parts and flowers have been used for human health benefits leading to uses in certain ailments from the early period of its history [9], [4], [11]. It was cited and has command in different systems of aromatherapy [1]. Many different industries produce a large number of products in entrepreneurial venture [12], [13]. In

fact the trend in the fashion industry of rose flowers kept pace with the trends in value added products industry in modern lifestyle. Perfume industry is mainly situated in Bulgaria, France, Morocco in North America, Turkey, Japan, Russia, Iran, Spain, Germany, Italy. And India also produces quality perfume [7], [8].

In recent years, there has been a rapid growth in world demand for plant based raw material for manufacturing of food, flowers, fragrances, perfumes, cosmetics and related products. A large number of value added products related to rose has come up in industry which occupied the main importance since beginning of 8th century. Now 80 to 85 per cent public utilized rose water.

II. MATERIAL AND METHODS

27 varieties of floribunda rose were taken for research work in present investigations. All plants were growth in uniform conditions in randomized block design with 3 replications. Varietal growth with flower characters were recorded observations. Recoded data were subjected for statistical calculations in methodology given by Panse and Sukhatme (1985).

III. EXPERIMENTAL FINDINGS AND DISCUSSION

In estimation of varietal variability of main characters-plant height, shoot length, number of flowers/plant and flower weight revealed considerable valuable results. Data of plant height varied from 36.33 and 38.887cm (V_{22}) to 57.233 and 58.133cm (V_{26}) during 2010-11 and 2011-12, respectively. Present findings are in accordance with the results observed by Swarup (1990), Singh and Kumar (2012) and Singh (1998).

Shoot length at varietal level has a great importance in export potential value. Shoot length was found maximum 47.350cm and 48.850cm (V_1) during 2010-11 and 2011-12, respectively. Singh (1999) and Singh *et al.* (2014) also advocated the impact of shoot length in rose flower export in industrial importance as it is valuable shoot length was recorded in present investigation.

In flower production V_{20} and V_{21} produced maximum number of flowers during 2010-11 and 2011-12, respectively. Similarly weight of flowers showed a great range of variation 17.367 (V_{14}) to 23.000g and 18.400 (V_{12}) to 22.667g (V_{21}) during 2010-11 and 2011-12, respectively.

Flower character parameters have been greatly appreciated by the scientist engaged in rose research (Swarup, 1990; Singh, 2016; Tyagi, 2007), Singh and Singh (2015), Singh *et*

al. (2014) and Singh (2010) also reported similar results. Flower quality in present varieties was found outstanding which was evident from the size of bud and flower. Prasad and Singh (2003), Shastri (2003), Reddy (2014) and Chakraborty (2014) also emphasized for flower quality and its products under commercialization which have considerable value in Indian and foreign export potential in national economy.

All above different varieties in its group were found in outstanding in performance for certain commercial traits which will be helpful in varietal selection. Varietal importance for industrial use and for products making i.e. oil, perfume etc products in entrepreneurial venture may give beneficial results for earning sources in various categories.

Rose Products:

(a) Properties of rose essential oil:

Infact essential oils are plant product-essence. It is different from fatty oils which are in sunflower seed, corn or sweet almond etc., Highly volatile, colourless like peppermint. Sometimes yellowish, Greenish, Amber or dark brown, have consistency. It is also a semi-solid at room temperature

(b) Rose essential oil:

It is an very important oil which has special aroma represents the ‘essence’ or odor. It is usually colourless mainly at fresh stage and highly volatile. It is used in aromatic effects are aroma defused for natural air freshener, in bath, foot or hand bath, message, compress for submerging cloths in the water. It is used in shower and also as your own perfume.

(c) Value added commercial products:

- 1. Rose water
- 2. Rose oil, otto or attar of Roses
- 3. Concrete
- 4. Absolute of Rose
- 5. Itra of roses
- 9. Dry flowers
- 10. Waxing of flower
- 11. Pot pourri
- 12. Pomanders
- 13. Colleges

- 6. Gulkand
- 7. Pankhuri
- 8. Agarbatties and dhoopathies
- 14. Medicins products
- 15. Dehydrated Products Petals
- 16. Rose leaf water

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TABLE I. Height of plant and length of shoot in floribunda varieties.

| Variety | Name of symbol | Plant height (cm) | | Shoot length (cm) | |
|------------------|-----------------|-------------------|---------|-------------------|---------|
| | | 2010-11 | 2011-12 | 2010-11 | 2011-12 |
| Neelkanti | V ₁ | 37.033 | 39.283 | 47.350 | 48.850 |
| Varsha | V ₂ | 40.067 | 40.717 | 44.200 | 48.790 |
| Ico Pearl | V ₃ | 40.817 | 41.433 | 41.300 | 42.933 |
| Indraman | V ₄ | 39.767 | 42.000 | 42.767 | 43.667 |
| Kanak | V ₅ | 36.633 | 38.983 | 42.750 | 41.483 |
| Pushkarani | V ₆ | 41.800 | 46.323 | 42.133 | 43.400 |
| Rare Addition | V ₇ | 41.950 | 41.000 | 41.950 | 40.250 |
| Thornless Beauty | V ₈ | 44.617 | 41.283 | 34.367 | 39.233 |
| Lovita | V ₉ | 39.117 | 41.167 | 38.967 | 38.550 |
| Prema | V ₁₀ | 41.233 | 43.617 | 41.517 | 42.833 |
| Delhi Princess | V ₁₁ | 46.100 | 41.183 | 45.017 | 43.667 |
| Vichitra | V ₁₂ | 48.883 | 48.037 | 43.850 | 44.753 |
| Winte Holiday | V ₁₃ | 52.833 | 57.433 | 44.267 | 43.097 |
| All Gold | V ₁₄ | 52.000 | 53.600 | 42.743 | 43.810 |
| Bright Smile | V ₁₅ | 50.317 | 54.367 | 46.400 | 46.400 |
| Gold Moss | V ₁₆ | 53.633 | 54.850 | 42.050 | 42.200 |
| Freedom | V ₁₇ | 54.683 | 55.963 | 34.517 | 46.197 |
| Living Fire | V ₁₈ | 50.350 | 51.367 | 45.450 | 46.400 |
| Angle Face | V ₁₉ | 51.017 | 52.583 | 44.250 | 43.627 |
| Neelambari | V ₂₀ | 50.583 | 52.833 | 44.150 | 43.483 |
| Bonanza | V ₂₁ | 51.067 | 51.217 | 42.317 | 42.500 |
| Shola | V ₂₂ | 36.233 | 38.887 | 40.850 | 40.320 |
| Suryakiran | V ₂₃ | 42.467 | 40.633 | 41.683 | 42.333 |
| Suryodaya | V ₂₄ | 44.80 | 45.783 | 40.917 | 42.633 |

| | | | | | |
|--------------|-----------------|----------|-----------|-----------|-----------|
| Illumination | V ₂₅ | 50.417 | 52.367 | 42.117 | 42.000 |
| Zorina | V ₂₆ | 57.233 | 58.133 | 43.333 | 44.847 |
| Zambra | V ₂₇ | 49.083 | 53.983 | 41.300 | 45.067 |
| | G.T. | 3734.200 | 3831.0200 | 3421.5300 | 3517.8200 |
| | G.M. | 42.241 | 47.2965 | 42.2411 | 43.4546 |
| | C.D. | 2.1780 | 2.0703 | 5.6893 | 1.2328 |

TABLE II. Number of flowers per plant and weight of flower.

| Variety | Name of symbol | No. of flower/plant | | Weight of flower/flower shoot | |
|------------------|-----------------|---------------------|-----------|-------------------------------|----------|
| | | 2010-11 | 2011-12 | 2010-11 | 2011-12 |
| Neelkanti | V ₁ | 22.333 | 22.300 | 11.500 | 11.733 |
| Varsha | V ₂ | 21.533 | 21.000 | 11.467 | 12.100 |
| Ico Pearl | V ₃ | 20.700 | 21.400 | 12.600 | 12.333 |
| Indraman | V ₄ | 21.467 | 21.333 | 11.633 | 11.333 |
| Kanak | V ₅ | 19.567 | 19.667 | 10.400 | 11.367 |
| Pushkarani | V ₆ | 19.700 | 19.633 | 11.533 | 11.500 |
| Rare Addition | V ₇ | 22.967 | 22.267 | 12.000 | 11.500 |
| Thornless Beauty | V ₈ | 21.500 | 21.500 | 12.233 | 12.367 |
| Lovita | V ₉ | 21.200 | 20.167 | 11.967 | 11.467 |
| Prema | V ₁₀ | 20.933 | 21.600 | 10.500 | 11.133 |
| Delhi Princess | V ₁₁ | 20.633 | 21.700 | 10.300 | 10.233 |
| Vichitra | V ₁₂ | 18.833 | 18.400 | 10.900 | 11.133 |
| Winte Holiday | V ₁₃ | 19.067 | 19.700 | 11.267 | 11.400 |
| All Gold | V ₁₄ | 17.367 | 20.033 | 10.833 | 11.233 |
| Bright Smile | V ₁₅ | 20.833 | 21.933 | 10.833 | 11.500 |
| Gold Moss | V ₁₆ | 21.133 | 21.300 | 10.667 | 11.600 |
| Freedom | V ₁₇ | 20.933 | 21.100 | 11.667 | 11.633 |
| Living Fire | V ₁₈ | 21.867 | 22.233 | 11.633 | 10.700 |
| Angle Face | V ₁₉ | 22.667 | 21.500 | 12.533 | 11.680 |
| Neelambari | V ₂₀ | 23.000 | 21.900 | 11.333 | 12.500 |
| Bonanza | V ₂₁ | 21.233 | 22.667 | 10.633 | 12.600 |
| Shola | V ₂₂ | 21.733 | 21.567 | 11.567 | 11.300 |
| Suryakiran | V ₂₃ | 22.033 | 20.600 | 11.667 | 11.167 |
| Suryodaya | V ₂₄ | 20.200 | 21.500 | 11.667 | 11.400 |
| Illumination | V ₂₅ | 22.033 | 22.567 | 12.700 | 12.600 |
| Zorina | V ₂₆ | 21.600 | 22.560 | 13.700 | 12.400 |
| Zambra | V ₂₇ | 20.333 | 21.933 | 11.567 | 11.633 |
| | G.T. | 1702.20 | 1720.4000 | 931.5000 | 939.5000 |
| | G.M. | 21.02148 | 21.2395 | 11.5000 | 11.5988 |
| | C.D. | 1.0795 | 0.7348 | 0.5223 | 0.3663 |