

## Effect of different levels of pruning on growth and flowering of rose (*Rosa indica* L.) cv. GLADIATOR

S.T. MENDHE\*, S.D. JATURE, D.M. PARKHE AND G.K. WADEWALE

Department of Horticulture, Marathwada Agricultural University, PARBHANI (M.S.), INDIA

### ABSTRACT

The field experiment was conducted at Department of Horticulture, Marathwada Agricultural University, Parbhani during 2009-10 to study the effect of different levels of pruning on growth and flowering of rose (*Rosa indica* L.) cv. GLADIATOR. It was observed that the pruning at 60 cm from ground level ( $T_6$ ) emerged significantly superior in increasing plant height (76.45 cm), early sprouting of buds (4.36 days), number of shoots per plant (35.10), length of flowering shoot (75.83 cm) and days to initiation of first flower (30.67 days). However, pruning at 10 cm from ground level obtained maximum diameter of flowering shoot (7.28 cm), number of leaves per flowering shoot (23.24) and leaf area per flowering shoot (1306.18 cm<sup>2</sup>).

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**Key words :** Pruning, Rose, Levels of pruning

### INTRODUCTION

The rose (*Rosa* species), occupies a pre-eminent place amongst the flower crops and it is one of the oldest of fragrant flower to be cultivated by man. Among the flowers, the rose has captured the heart of all. The rose flower, its different types having beautiful flower of exquisite shape, different size, bewitching colours and most delightful fragrance has made it an important flower for various uses. Rose is ultimate in beauty and perfection and therefore, Sappho, the Greek poet named, it is 'Queen of Flowers' in 600 B.C., no other flower is a better symbol of love, adoration, innocence and other virtues than the rose and not in our time only, but so it has been for thousand of years.

Rose cv. GLADIATOR is a popular hybrid 'T' rose grown for cut flowers due to its attractive colour, large size flowers with long stalk and more vase life. In Maharashtra, it plays dominant role in flower trade and hence, it is grown on a large scale in this region for production of cut flowers. The flowers of this variety are deep red, well shaped and abundantly produced on long stem (Pal, 1991).

Pruning is an important cultural operation in commercial rose cultivation. Pruning refers to the removal of certain portion of a plant. It is important for maintenance of floriferousness and flower quality along with vigour of rose plant. Correct pruning is an essential factor of success in rose growing and therefore, it should be done with precision and care (Gault and Synge, 1971).

The main objects of pruning rose plants is to remove the unproductive growth, ensure production of large number of strong and healthy shoots, which will bear flowers and improve the quality of blooms. Not much work has been done in pruning of roses in India. The object of present investigation was to standardize proper height of pruning from ground level for better growth and flowering of rose.

### MATERIALS AND METHODS

The experiment was laid out in Randomized Block Design with seven treatments and four replications. Three year old rose plants of cv. GLADIATOR was selected for investigation. Twenty eight individual plots having spacing 120 cm x 120 cm between plants and plot size of 23.04 m<sup>2</sup> were demarcated. The fertilizers nitrogen, phosphorus and potash were applied @ 100 : 50 : 50 kg/ha in the form of urea, single super phosphate and muriate of potash, respectively. Half of the N, full P and K were applied immediately after pruning. Remaining half dose of N was applied in two split doses. Pruning of rose plants was undertaken at various levels according to treatments. The treatment details are as follow :  $T_1$ -Pruning at 10 cm from ground level,  $T_2$ -Pruning at 20 cm from ground level,  $T_3$ -Pruning at 30 cm from ground level,  $T_4$ -Pruning at 40 cm from ground level,  $T_5$ -Pruning at 50 cm from ground level,  $T_6$ -Pruning at 60 cm from ground level and  $T_7$ -Control (no pruning).

\* Author for correspondence.

**RESULTS AND DISCUSSION**

Data presented in Table 1 revealed that minimum days were required for sprouting of buds when plants pruned at 60 cm from ground level. The maximum days required for sprouting of buds observed in treatment T<sub>7</sub> (no pruning). The treatment T<sub>6</sub> (4.36 days) was at par with T<sub>5</sub> (4.5 days) and T<sub>4</sub> (4.67 days). The similar results were reported by Degeyter (1975) and Uma and Gowda (1987).

Among the different levels of pruning maximum plant height was found when plants pruned at 60 cm from ground level over rest of the treatments except T<sub>5</sub> (74.83 cm). The treatment T<sub>6</sub> was found to be significantly at par with treatment T<sub>5</sub>. Treatment T<sub>7</sub> (control) showed minimum plant height (68.66 cm) at 120 days after pruning.

Number of shoots per plant was found to be maximum when plant was pruned at 60 cm from ground level. This finding is in agreement with the results reported by Degeyter (1975) who observed that highest number of shoots or enhanced flowering with 60 cm pruning height.

The observation recorded in respect of length and diameter of flowering shoot indicated that the length of flowering shoot was maximum in 60 cm pruning height from ground level and minimum length of flowering shoot was recoded in control. The diameter of flowering shoot was found maximum when plants were pruned at 10 cm height from ground level and minimum diameter of flowering shoot was observed in control. This might be due to less number of shoots per plant produced and slow growth, increased the diameter of shoot. The similar results were reported by Ghulam *et al.* (2001).

It was noticed that number of leaves and leaf area per flowering shoot among the different levels at pruning 60 cm was found most effective in increasing number of leaves and leaf area per flowering shoot. This is accordance with the finding of Popkov and Vasil (1987).

The minimum number of blind shoots were observed in T<sub>6</sub> (0.17) than all other treatments except T<sub>5</sub> (0.64) which was found to be statistically at par with each other. The result reported in present findings are in conformity with the findings of Singh and Ram (1987) while working on pruning effect in rose.

From Table 1 it is clear that the maximum spread of plant was observed in treatment T<sub>7</sub> where no pruning practices was done. The results in regard to pruned wood weight indicated that the treatment T<sub>1</sub> produced significantly superior pruned wood weight while minimum pruned wood weight was recorded in treatment T<sub>7</sub> where, no pruning practices was done. This is in accordance with

Sr. No.	Pruning height (cm)	Days to sprout	Plant height (cm)	No. of shoots/plant	Length of flowering shoot (cm)	Diameter of flowering shoot (cm)	No. of leaves/shoot	Leaf area (cm <sup>2</sup> )	No. of blind shoots/plant	Pruned wood weight (g)	Days to flower
1.	10	5.6	70.7	11.60	7.28	6.33	69.33	23.27	1.305	153170	11/8
2.	20	5.57	71.05	18.73	7.07	70.72	22.73	265.58	1.32	67971	15.07
3.	30	5.27	72.79	25.16	6.78	71.75	20.92	158.11	1.30	58229	13.15
4.	40	4.67	72.96	28.67	6.72	71.90	19.53	113.77	1.05	55729	35.72
5.	50	4.5	74.83	33.67	6.20	73.75	18.83	697.0	0.67	17173	32.76
6.	60	4.36	76.75	35.70	6.16	75.83	18.71	657.20	0.77	733.05	30.67
7.	Control (no pruning)	7.23	68.66	15.73	6.07	67.05	17.55	1027.25	2.00	107.20	37.85
S.E.		0.77	0.57	0.37	0.16	0.68	0.70	0.36	0.16	27.93	0.72
C.D. (P=0.05)		0.57	1.69	1.03	0.78	2.07	1.19	1.09	0.78	73.96	2.76

the finding of Mukhopadhyay (1987).

Minimum days to initiation of first flower were recorded when plants were pruned at 60 cm height from ground level and more days required for initiation of first flower in treatment T<sub>1</sub>. The result reported is inconformity with the findings of Uma and Gowda (1987).

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