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# Response of Rose Varieties to Pruning Severity under open Conditions

Chitla N.R. Santhoshini\* and D.M. Panchbhai

*\*Department of Floriculture and Landscaping, College of Horticulture, Rajendranagar, Sri Konda Laxman Telangana State Horticultural University, Mulugu, Siddipet 502 279, Telangana, India*

## ABSTRACT

A field experiment was conducted at Farm of Horticulture Section, College of Agriculture, Nagpur, India on “Response of Rose varieties to pruning severity under open conditions” during winter season. The research was carried out to study the response of Rose varieties to pruning severity for growth, flowering and yield and to find out the suitable pruning severity for better flower yield of different rose varieties. The experiment was laid in Factorial Randomized Block Design with three replications and twelve treatment combinations. The treatments comprised of three varieties *viz.* Toro, Double Delight and Gladiator as factor ‘A’ and four pruning severity levels *viz.* control, light, medium, heavy as factor ‘B’. The results of experiment revealed that minimum days to sprouting after pruning, blind shoots per plant was seen in Gladiator and light pruning; sprouts plant<sup>-1</sup>, lateral shoots plant<sup>-1</sup> were maximum in Gladiator and medium pruning; leaves per flowering shoot, shoot length and intermodal length of shoot were maximum in Gladiator and heavy pruning. In floral characters, earliness in flower bud emergence, days to harvest from bud opening, maximum duration of flowering were noted with Gladiator and light pruning; flower quality parameters like length of flower stalk, diameter of flower stalk, length of flower bud, diameter of flower bud, diameter of fully opened flower, number of petals plant<sup>-1</sup>, vase life of cut flowers were superior in Gladiator and heavy pruning. In yield parameters, maximum number of flowers plant<sup>-1</sup>, plot<sup>-1</sup> and ha<sup>-1</sup> were found maximum in Gladiator and medium pruning.

**Key words:** *Rose varieties, Pruning severity, Growth, Flowering, Quality, Yield*

## Introduction

Floriculture is one of the most important branches of horticulture in aesthetic, social to commercial sense. The total area under floriculture crops in India was estimated to be 233,000 hectare with the production of 1,729,000 metric tons of loose flowers and 76,732 lakhs number of cut flowers (Anon, 2020). Maharashtra is one of the leading states of the country in flower production. The rose is grown in India in about 6,000 ha area. Roses are commercially grown on large scale in the districts of Pune, Nasik, Sangli, Ahmednagar and Nagpur in Maharashtra

state. The following objectives of this experiment is to study the response of rose varieties to pruning severity for growth, flowering and yield and to find out the suitable pruning severity for better flower yield of different rose varieties

## Materials and Methods

The present investigation was carried out at the experimental field of Horticulture Section, College of Agriculture, Nagpur on Factorial Randomized Block Design with three replications. Four types of pruning were studied in three rose varieties of cv. Gladi-

\*Assistant Professor

ator, Double Delight and Toro i.e., the control with no pruning and light, medium, heavy pruning in which cut was given at 75cm, 50cm, and 25cm from ground level respectively. Five plants from each treatment plot were selected randomly during experimentation for recording various parameters.

## Results and Discussion

The data presented in Table 1 revealed that, varieties and different levels of severity pruning had significant effect on all growth and flowering parameters of Rose.

### Growth Parameters

Significantly growth parameters were recorded maximum in Gladiator variety and in medium pruning. Bhattacharjee *et al.*, (1993) revealed that in rose, maximum sprouts per shoot and lateral shoots per plant was recorded in the medium pruning.

### Flowering Parameters

The flowering parameters were recorded significantly maximum in the Gladiator variety and in light pruning. Jadhav *et al.* (2003) reported while conducting experiment in maximum duration of flowering was recorded in light pruning,

### Quality Parameters

Significantly quality parameters were recorded maximum with the variety Gladiator and in the heavy pruning. This might be due to fact that physiologically, fresh buds after pruning grow vigorously. The results are in conformity with Mendhe *et al.*, (2011) who observed that maximum quality parameters in rose (*Rosa indica* L.) cv. Gladiator.

### Yield Parameters

The flowering yield parameters were recorded significantly in the variety Gladiator followed and in medium pruning. Anil (2009) reported that maximum flowers/plot and flowers/ha in medium pruning while conducting experiment in rose.

### Conclusion

The maximum vegetative growth and yield parameters of rose plant were found significantly superior in Gladiator variety and medium pruning. Flowering and flower quality parameters were found significantly superior in Gladiator variety and Heavy pruning.

**Table 1.** Response of Rose varieties to pruning severity on growth and flowering parameters under open conditions

Treatments	Days to Sprouting	Sprouts per shoot	Sprouts shoots per plant	No. of Leaves per flowering shoot	Shoot length (cm)	Internodal length of shoot (cm)	Blind shoots per plant	Days to first bud emergence	Days to harvesting from bud emergence	Duration of flowering (days)
Varieties										
V <sub>1</sub> - Toro	3.95	3.43	10.30	16.18	8.305	7.29	2.73	30.16	8.17	104.83
V <sub>2</sub> - Double Delight	4.19	3.25	9.75	14.37	79.70	6.58	3.75	32.29	8.83	102.33
V <sub>3</sub> - Gladiator	3.60	3.97	11.90	17.19	90.48	8.69	1.74	29.68	7.17	112.58
SE (m) ±	0.06	0.05	0.16	0.28	1.14	0.33	0.07	0.27	0.25	0.74
CD (P=0.05)	1.18	0.16	0.48	0.82	3.35	0.97	0.20	0.79	0.73	0.86
Pruning severity										
P <sub>1</sub> -Control	5.56	2.30	6.90	13.51	73.36	5.97	3.41	34.12	9.56	96.67
P <sub>2</sub> -Light	2.21	4.16	12.47	14.04	81.93	6.77	2.30	26.84	6.11	117.78
P <sub>3</sub> -Medium	3.37	4.37	13.10	16.26	90.23	8.35	2.46	29.32	7.67	109.89
P <sub>4</sub> -Heavy	4.53	3.38	10.13	19.84	95.44	8.99	2.56	32.56	8.67	102.00
SE (m) ±	0.07	0.06	0.1	0.32	1.32	0.38	0.08	0.31	0.29	2.17
CD (P=0.05)	0.21	0.19	0.5	0.95	3.87	1.11	0.23	0.91	0.84	2.0
Interaction effect VxP										
SE (m) ±	0.21	0.11	0.32	0.56	3.35	0.66	0.14	0.54	0.49	4.33
CD (P=0.05)	-	-	-	-	-	-	-	-	-	-

The data presented in table 2 revealed that, varieties and different levels of severity pruning had significant effect on all quality and yield parameters of Rose.

**Table 2.** Response of Rose varieties to pruning severity on quality and yield parameters under open conditions

Treatments	Length of flower stalk (cm)	Diameter of flower stalk (cm)	Length of flower bud (cm)	Diameter of flower bud (cm)	Diameter of fully opened flower (cm)	Number of petals flower <sup>-1</sup>	Vase life (days)	Flowers plant <sup>-1</sup>	Flowers plot <sup>-1</sup>	Flowers ha <sup>-1</sup> (lakhs)
<b>Varieties</b>										
V <sub>1</sub> - Toro	81.48	0.58	2.52	3.17	8.37	38.24	7.90	12.03	110.25	2.97
V <sub>2</sub> - Double Delight	55.17	0.48	2.25	2.80	8.18	32.60	6.80	10.95	105.92	2.92
V <sub>3</sub> - Gladiator	85.40	0.69	2.83	3.55	8.79	42.09	8.68	13.55	117.67	3.11
SE (m) ±	0.98	0.006	0.08	0.07	0.12	0.66	0.13	0.12	1.21	0.03
CD (P=0.05)	2.86	0.02	0.24	0.22	0.35	1.95	0.37	0.35	3.56	0.08
<b>Pruning severity</b>										
P <sub>1</sub> -Control	59.07	0.44	1.70	2.67	7.76	32.83	5.94	10.40	98.11	2.60
P <sub>2</sub> -Light	64.78	0.54	1.97	3.09	7.99	36.52	7.72	12.62	116.44	3.11
P <sub>3</sub> -Medium	81.54	0.62	2.98	3.37	8.89	39.33	8.42	13.96	122.78	3.34
P <sub>4</sub> -Heavy	91.07	0.74	3.49	3.57	9.16	42.09	9.09	11.72	107.7	2.94
SE (m) ±	1.13	0.008	0.09	0.08	0.14	0.77	0.15	0.14	1.40	0.03
CD (P=0.05)	3.30	0.02	0.28	0.25	0.40	2.24	0.43	0.40	4.11	0.10
<b>Interaction effect V X P</b>										
SE (m) ±	1.95	0.01	0.16	0.15	0.24	1.32	0.25	0.24	2.42	0.06
CD (P=0.05)	-	-	-	-	-	-	-	-	-	-

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