

Effect of Different Pruning height on Flowering and Yield of Jasmine (*Jasminum auriculatum* L.) Mullai

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Abstract

The present investigation was carried on “Effect of different height of pruning on flowering and yield of Jasmine (*Jasminum auriculatum* L.) Mullai. The field experiment was carried out at the Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu during the year 2015. The experiment was laid out in randomized block design with three replications and six treatments. Four years old Jasmine Mullai plants were selected for investigation. In this investigation jasmine plants were pruned at different height viz. T₁ control (No pruning) T₂ pruning at 20 cm from ground level, T₃ pruning at 30 cm from ground level, T₄ pruning at 40 cm from ground level, T₅ pruning at 50 cm from ground level, and T₆ pruning at 60 cm from ground level. The effect of these treatments was noted on flowering and yield of Mullai. (*Jasminum auriculatum* L.). The pruning at 50 cm from ground level emerged significantly superior for flowering parameters like days taken for first flower (60.04 days), days taken for 50 per cent flowering (73.51 days), and yield parameters like weight of 100 flower buds (9.15 g), number of flowers per plant (3328.64), and yield of flowers per hectare (83.21 q ha⁻¹) in Mullai. The next best treatment was pruning at 40 cm height from ground level in respect of yield of Mullai. This might be due to the accelerated mobility of photosynthetic from the source to the sink as influenced by growth hormone released or synthesized due to higher plant growth.

Introduction

Jasmine (Mullai) is one of the most important commercial flower crop widely cultivated and esteemed for its attractive fragrant flowers. Among the important species of jasmine, (*Jasminum auriculatum*) Mullai is the most common. Jasmine oils are used extensively in the manufacture of cosmetics, soaps, confectionary perfumes, ointments, disinfectants and detergents. Flowers are used for making garland, hair adornments of woman and for medicinal purpose. The fragrance of jasmine flower cannot be imitated by any one of the known synthetic aromatic chemicals. Mullai is an evergreen plant. Usually propagated by simple layering. Pruning is most important practice in jasmine that can enhance the

health, vigour and aesthetics of Mullai plant. Pruning makes the plant strong and build up a good frame work. It is important for maintenance of floriferousness and flower quality along with vigor of jasmine plant. Ratikanth. 2005 observed that plants of *J. auriculatum* pruned at 40 cm height in December produced the highest yield. Han *et.al.*,(1997)

Materials and Methods

The experiment was carried out at Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu during the year 2015. The experiment was laid out in Randomized Block Design (RBD) with 6 treatments and 3 replications. Four year old Mullai plants was selected for investigation, 18 individual plots with spacing 1.5 x 1.5 m size were marked in experimental field leaving 50 cm between two plots and 100 cm between two replications. Recommended dose of fertilizer for Mullai is 100:50:50 kg NPK ha⁻¹. for the. Nitrogen was applied in the form of Urea, Phosphorus through single super phosphate and Potash through muriate of potash. Treatment includes pruning of Mullai plants at different height viz. 20 cm, 30 cm, 40 cm, 50 cm, 60 cm above the ground level and no pruning (control) by keeping uniform number of branches. Shoots were pruned with the help of secateur, half centimetre above the bud to prevent fungal infection, cut ends of the shoots were applied with copper fungicide. Dead infested and damaged weak branches were pruned. Pruning of Mullai plants was undertaken on December.

Results and Discussion

The results reveals that in respect of flowering and yield parameters of Mullai viz., initiation of first flower, days taken for 50 per cent flowering, weight of flower, number of flowers per plant, yield of flowers per plant, yield of flowers per plot and yield of flowers per hectare revealed that there were significant effect of various height of pruning.

The data in respect of average number of days required for appearance of first flower and days to 50 per cent flowering in various treatments are presented in Table-1. The treatment T₅ (60.04 days) produced significantly earlier initiation of flowering than all other treatments except T₃ (69.73 days). The treatment T₁ recorded late initiation of flowering (75.08 days) as compared to all other treatments. In case of 50 per cent flowering the treatment T₅ (73.51 days) required less number of days for 50 per cent flowering which was found significantly superior over all other treatments. The treatment T₁ (97.24 days) recorded late flowering as compared to other treatments.

The data pertaining to the mean number of flowers per plant as influenced by different height of pruning were presented in Table.1. The treatment T₅ (3328.64) produced significantly more number of flowers per plant than all other treatments. The treatment T₁ (1963.47) and T₂ (2643.51).. Less number of flowers per plant was recorded in treatment T₆ (3071.72).

The data presented in Table revealed that the treatments of various height of pruning showed significant effects in respect of yield of flower per plant (2323.39 gm), per plot (3.34 kg) and per hectare (8321.60 kg ha⁻¹). Was recorded in T₅, followed by T₄ (2206.69 g plant⁻¹), (3.17kg plot⁻¹) and (7785.34

ha⁻¹). Minimum yield of flowers were recorded in control treatment T₁ (1362.64 g plant⁻¹), (1.96 kg plot⁻¹) and (3728.18 kg ha⁻¹).

The significant differences were observed in all treatments. The treatment T₅ required less number of days for initiation of first flower and for 50 per cent flowering and comparatively delayed flowering was observed in plants pruned at lower height of height. The present findings are in agreement with the findings of Saffari, (2004) while studied in roses.

Plants were pruned at 50 cm (T₅) from the ground level produced significantly large size flowers than other treatments followed by T₄ (40 cm) and T₃ (30 cm). The results are partially contractor with findings of Admasu and Struikb. (2000) studied the pruning of Rose observed the highest total shoot number and enhance flowering with the higher pruning height. Similar results also recorded by Mukhopadhyay *et al.*, (1987) supporting the present investigation. The results in regards to weight of flower indicated the significant differences. When pruning was done 50 cm(T₅) from ground level produced superior weight of flower. The minimum weight of flower was observed in control. This is accordance with the findings of Langstrom and Hellqvist, 1991 revealed that when plants were pruned at light pruning the weight of flower increased respectively. The higher flower weight in treatment T₅ might be due to the accelerated mobility of photosynthetic from the source to the sink as influenced by growth hormone synthesized due to higher plant growth.

The increased number of flowers per plant was observed in 50 cm height of pruning (T₅). The lowest number of flowers observed in control (T₁). It may be due to accumulation of cytokinin in the producing shoot and this could have caused increased number of flower per plant. The results obtained in the present study are on similar line and in conformity to those findings reported by Ratikanth. (2005) in roses. Similar results were reported by Ghulam (2001). in Rose.

Maximum yield of flower per plant was obtained in treatment T₅ followed by treatment T₃ and T₂ respectively. Minimum yield of flower per plant was recorded in treatment T₁ (control). The findings are in the line with Adnan *et al.*, (2013) to indicate that the optimum level of pruning 20,30,and 40 cm above ground level for rose cultivars were the best in terms of performance of growth, number and size of flowers 30 cm pruning height was most promising in terms of yield. Similar results were reported by \ Porwal (2002).

The data pertaining to yield of flowers indicated significant increase in the yield per plot as well as per hectare in 50 cm pruning height (T₅) from ground level. Maximum yield of flower per plot and per hectare was observed in treatment T₅ followed by the treatment T₃ and T₂ respectively. Reduced yield of flower per plot and per hectare in treatment T₁ (control). Adnan *et.al.*,(2013) reported that all treated plants irrespective of amount of pruning produced significantly higher flower number and flower yield in comparison to unpruned plants.

The present investigation revealed that in general pruning in Mullai (*Jasminum auriculatum* L.) found effective in increasing flowering and yield of flowers. On the basis of present studies it can be

concluded that Pruning is most important practice in jasmine that can enhance the health, vigour and aesthetics of Mullai plant. Pruning makes the plant strong and build up a good frame work. It is important for maintenance of floriferousness and flower quality along with vigour of jasmine plant.

Pruning at 50 cm height from the ground level was found effective for enhancing flowering and yield of flowers (2.5 times more yield than control) in Mullai. This might be due to the accelerated mobility of photosynthetic from the source to the sink as influenced by growth hormone released or synthesized due to higher plant growth, diverting its energy for production of new shoots and due to increase in nodes resulted from cell elongation and cell division.

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