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Lagamanna R Kullur
Ph.D Schlor Floriculture &
Landscaping) Department of
Horticulture, SHUATS,
Allahabad, Uttar Pradesh, India

Prasad VM
Professor Department of
Horticulture, SHUATS,
Allahabad, Uttar Pradesh, India

Devi Singh
Assistant Professor Department
of Horticulture, SHUATS,
Allahabad, Uttar Pradesh, India

VB Rajwade
Associate Professor Department
of Horticulture, SHUATS,
Allahabad, Uttar Pradesh, India

Correspondence

Prasad VM
Professor Department of
Horticulture, SHUATS,
Allahabad, Uttar Pradesh, India

Effect of spacing on flowering and quality parameters of growth and yield of spider lily (*Hymenocallis speciosa* L.)

Lagamanna R Kullur, Prasad VM, Devi Singh and VB Rajwade

Abstract

A field experiment was conducted at Department of Horticulture, Sam Higginbottom University of Agriculture, Technology and Science, Allahabad, India during 2015-18. The experiment was laid out in randomized block design with 9 treatments in three replications on different spacing results revealed that early spike emergence observed in T₂ 90×60 cm (61.17 days), early flower emergence observed in T₂ 90×60 cm (65.10 days), Spike length of plant was significant higher with T₂ 90×60 cm (63.97 cm), Flower bud diameter was significant higher with T₂ 90×60 cm (11.47 mm), Flower bud length was significant higher with T₂ 90×60 cm (19.05 cm), Individual flower bud weight was significant higher with T₂ 90×60 cm (3.73 g), under Allahabad agro climatic conditions.

Keywords: Spike length, Flower bud length, Flower bud weight

Introduction

Without flowers the world would not have been as beautiful as charming as it is today. Flowers symbolize as beauty, purity, love, freshness, surrender, tranquility, honesty, peace and divinity. There is a wide reference to flowers in Indian Mythology and Purans—signifying how important they have been in the country's traditions. Flower is an inseparable part of human social fabric. Every occasion right from birth through marriage to death, no ceremony is complete without flowers. They are used for preparation of garlands, bouquets in marriages, festivals, religious and official ceremonies and for worshipping God. Indian women find great pride in adorning flowers. Also, scented flowers like rose, jasmine, tuberose etc. are used for extracting essential oil, which used in perfumery industries and cosmetics.

Spider lily among the various flowers grown in India, a bulbous ornamental plant is becoming popular and is cultivated for its white fragrant spidery shaped flowers. The spider lily (*Hymenocallis speciosa* L.) belongs to the Amaryllidaceae family, comprising of about 40 species of bulbous plants and of native of Peru, South America. Some of the other important species are *H. Macrostephana*, *H. harrisina*, *H. cusibar*, *H. calathina*, *H. ovata*, *H. tudiflora* and *H. amancaes*. All these flowers are white, except *H. amancaes*, which is bright yellow in colour.

Materials and methods

The experiment was conducted with 9 treatments of different spacing viz. T₁ 90×90 cm, T₂ 90×60 cm, T₃ 90×30 cm, T₄ 60×90 cm, T₅ 60×60 cm, T₆ 60×30 cm, T₇ 30×90 cm, T₈ 30×60 cm, T₉ 30×30 cm. Were sown randomized block design with 3 replication. The experiment was conducted in the floriculture Research Farm, Department of Horticulture, Naini Agricultural institute Sam Higginbottom University of Agriculture, Technology and Sciences, Allahabad (Uttar Pradesh). Observations were recorded on all characters viz. Days taken for first spike emergence, days taken for first flower emergence, spike length, flower diameter, flower bud length, individual flower bud weight. The data recorded during the course of investigation on growth components were subjected to two way classification analysis of variance (ANOVA). Where the 'F' test was significant for comparison of the treatment means, CD values were worked out at 5% probability level.

Result and discussion

Days taken for first spike emergence after planting was significant the early spike emergence observed in T₂ 90×60 cm (61.17 days) followed by T₅ 60×60 cm (65.40 days) and T₈ 30×60

cm (65.41 days). However among the all treatments, the more days taken for first spike emergence was significantly observed in with T₉ 30×30 cm (70.35 days), followed by T₁ 90×90 cm (68.99 days) and T₆ 60×30 cm (68.47 days) compared to all treatments. Days taken for first flower emergence after planting was significant the early flower emergence observed in T₂ 90×60 cm (65.10 days) followed by T₅ 60×60 cm (70.22 days) and T₃ 90×30 cm (71.99 days). However among the all treatments, the more days taken for first flower emergence was significantly observed in with T₉ 30×30 cm (80.31 days), followed by T₁ 90×90 cm (73.71 days) and T₄ 60×90 cm (73.66 days) compared to all treatments.

Spike length of plant was significant higher with T₂ 90×60 cm (63.97 cm) followed by T₅ 60×60 cm (3.72 cm) and T₆ 90×90 cm (61.96). However among the all treatments, the spike length of plant was significantly lower with T₉ 30×30 cm (56.36 cm), followed by T₄ 60×90 cm (58.18 cm) and T₈ 30×60 cm (59.22 cm) compared to all treatments. Flower bud

diameter was significant higher with T₂ 90×60 cm (11.47 mm) followed by T₅ 60×60 cm (10.88 mm) and T₄ 60×90 cm (10.55 mm). However among the all treatments, the flower bud diameter was significantly lower with T₉ 30×30 cm (8.58 mm), followed by T₈ 30×60 cm (9.30 mm) and T₇ 30×90 cm (9.86 mm) compared to all treatments.

Flower bud length was significant higher with T₂ 90×60 cm (19.05 cm) followed by T₅ 60×60 cm (19.86 cm) and T₄ 60×90 cm (19.84 cm). However among the all treatments, the flower bud length was significantly lower with T₉ 30×30 cm (18.33 cm), followed by T₇ 30×90 cm (18.40 cm) and T₃ 90×30 cm (18.69 cm) compared to all treatments. Individual flower bud weight was significant higher with T₂ 90×60 cm (3.73 g) followed by T₅ 60×60 cm (3.29 g) and T₈ 30×60 cm (3.07). However among the all treatments, the individual flower bud weight was significantly lower with T₉ 30×30 cm (1.98 g), followed by T₄ 60×90 cm (2.30 g) and T₁ 90×90 cm (2.46 g) compared to all treatments.

Table 1: Effect of Spacing on Flowering and Quality Parameters of Growth and Yield of Spider Lily (*Hymenocallis speciosa* L.)

Treatments	First spike emergence (days)	First flower emergence (days)	Spike Length (cm)	Flower diameter (mm)	Flower bud length (cm)	Individual flower bud weight (g)
90 cm×90 cm	68.99	73.71	61.76	9.96	19.06	2.46
90 cm×60 cm	61.17	65.10	63.97	11.47	19.05	3.73
90 cm×30 cm	69.11	71.99	61.75	10.48	18.69	2.87
60 cm×90 cm	66.26	73.66	58.18	10.55	19.84	2.30
60 cm×60 cm	65.40	70.22	63.72	10.88	19.86	3.29
60 cm×30 cm	68.47	72.49	61.96	10.54	19.40	2.88
30 cm×90 cm	67.30	73.05	60.00	9.86	18.40	2.57
30 cm×60 cm	65.41	72.20	59.22	9.30	19.05	3.07
30 cm×30 cm	70.35	80.31	56.36	8.58	18.33	1.98
F-test	S	S	S	S	S	S
S.Ed. (±)	0.02	0.02	0.01	0.01	0.01	0.02
C.D.(P = 0.05)	0.05	0.02	0.03	0.03	0.02	0.03

Conclusion

Based on the present investigation from two years experimental trial it is concluded that the spacing 90×60 cm, superior over all the treatments in terms of all flowering and Quality parameters.

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