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Effect of different growing seasons on bloom life of flowers in Asiatic lily hybrids

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ABSTRACT

An experiment was carried out in two different growing seasons Kharif and winter during 2013-2014 in the terrace garden of the Department of Floriculture and Landscaping, College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneswar to evaluate the bloom life of five Asiatic lily hybrid varieties viz New Wave, Orange Matrix, Alaska, Nov Cento and Monte Negro. Results of the study indicated that different varieties under trial had significant influence with respect to bloom life. Variety Monte Negro recorded maximum (6.47 days) bloom life under winter season followed by Alaska (5.93 days) and New Wave (5.61 days). New Wave produced the tallest plant under Kharif season and was also earliest for appearance of flower bud; Orange Matrix recorded the maximum leaf area under winter season; Nov Cento produced maximum number of flower buds per shoot and also recorded maximum duration of flowering.

Keywords: Asiatic lily; variety; bloom life; growing seasons

INTRODUCTION

Lilium is one of the most beautiful and graceful flowers grown in various parts of the world. It is one of the six major genera of flower bulbs produced worldwide (De Hertogh and Le Nard 1993). Due to its size, beauty and longevity, lilium is regarded as one of the ten most superior cut flowers in the world (Thakur et al 2005). It is an important geophyte endowed with showy flowers, appealing colour patterns and durable spikes. The beauty and charm of the blooms can be enjoyed throughout the year by selecting suitable cultivars and growing in suitable locations. Asiatic hybrid lilies are the plants with short narrow leaves, medium sized upright or outward facing flowers having extended range of booming period and mostly odourless. Due to its large attractive flowers having capacity to rehydrate after a long transportation, popularity of lilium is gaining fast in our country. Moreover information on bloom life of flowers in Asiatic lily hybrids in different growing seasons could prove helpful

for formulating package of practices for a profitable flower crop. Therefore the present investigation was carried out to study the bloom life of flowers in Asiatic lily hybrids.

MATERIAL and METHODS

The present investigation was carried out at the Department of Floriculture and Landscaping, College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneswar, Odisha. The trial was conducted in the form of a factorial experiment following completely randomized design with three replications. Bulbs were procured from the last year's crop and stored in the refrigerator at 4°C temperature. These were planted in 30 cm diameter pots one in each pot on 29 July 2013 for Kharif season and on 18 October 2013 for winter season at a depth of 10 cm filled with the media comprising soil, sand and cocopeat in the ratio 2:1:1 (v/v) leaving 2.5 cm at the top to facilitate irrigation. The data were recorded on vegetative and floral characters like plant height, leaf area, days taken to first flower bud appearance, duration of flowering, bloom life and number of flower buds per shoot.

RESULTS and DISCUSSION

The results obtained are presented in Table 1. Among the five varieties significantly maximum plant height was recorded in V1 (New Wave) followed by V4 (Nov Cento) whereas it was minimum in V5 (Monte Negro). Similar variation in plant height of different varieties of lilium was also reported by Sindhu and Singh (2012) under northern plains. The plants grown under S1 (Kharif season) exhibited greater height than plants grown under S2 (winter season). Similar results were reported by Padaganur et al (2005) in tuberose. Though the performance of var New Wave (V1) was better with respect to plant height irrespective of season so far as interaction was concerned, variety Nov Cento performed better (40.24 cm) under S1 (Kharif season).

The maximum leaf area was found in Orange Matrix (V2) which was followed by New Wave (V1) and Nov Cento (V4) and the minimum was recorded in Monte Negro (V5). Variation in leaf area among different cultivars of gerbera was reported by Kumari et al (2010). Leaf area was maximum in plants grown under winter season (15.52 cm^2). Various combinations of varieties and growing seasons also had significant influence on leaf area. The maximum leaf area (22.56 cm^2) was recorded in Orange Matrix (V2) grown under S2 (winter season) followed by Nov Cento (V4) grown in the same season (17.44 cm^2).

Variety New Wave (V1) was the earliest to produce flower bud which took 30.59 days followed by Nov Cento (V4) where the same was observed in 35.75 days. On the other hand maximum (47.38

Table 1. Effect of seasons on various plant characters in Asiatic lilium hybrids

Treatment	Plant height (cm)	Leaf area (cm^2)	# days taken for appearance of first flower bud	# flower buds/shoot	Bloom life	Duration of flowering
Variety (V)						
V1	30.87	14.98	30.59	3.33	5.61	11.65
V2	16.51	17.69	47.38	2.18	5.30	9.92
V3	21.51	13.40	39.16	2.95	5.93	11.40
V4	30.41	13.62	35.75	4.08	4.65	12.04
V5	11.64	8.26	46.95	3.63	6.47	10.19
SEm±	1.59	0.85	2.21	0.24	0.31	0.83
$CD_{0.05}$	4.77	2.56	6.64	0.72	0.94	NS
Season (S)						
S1	25.83	11.66	36.28	3.01	4.63	8.58
S2	18.54	15.52	43.65	3.46	6.55	13.49
SEm±	1.00	0.54	1.40	0.15	0.20	0.52
$CD_{0.05}$	3.02	1.62	4.20	NS	0.60	1.57
Variety × season (V × S)						
V1S1	36.29	14.38	25.66	3.58	4.92	9.83
V2S1	18.47	12.83	44.16	1.94	4.55	7.69
V3S1	24.80	13.90	36.38	3.00	5.25	9.19
V4S1	40.24	9.81	26.41	3.75	4.17	8.67
V5S1	9.37	7.39	48.80	2.77	4.28	7.55
V1S2	25.45	15.57	35.52	3.08	6.30	13.47
V2S2	14.56	22.56	50.61	2.41	6.05	12.17
V3S2	18.22	12.90	41.94	2.91	6.61	13.61
V4S2	20.58	17.44	45.08	4.41	5.14	15.42
V5S2	13.91	9.14	45.11	4.50	8.67	12.83
SEm±	2.25	1.21	3.13	0.34	0.44	1.18
$CD_{0.05}$	6.75	3.62	9.40	1.02	1.33	NS

NS= Non-significant, V1=New Wave, V2= Orange Matrix, V3= Alaska, V4= Nov Cento, V5= Monte Negro, S1= Kharif season, S2-Winter season

days) number of days was taken by Orange Matrix (V2) followed by Monte Negro (46.95 days). Findings of the present study are in close agreement with the findings reported by Dhiman (2003) who observed significant variation among lilium hybrids with respect to days to visible bud formation under Kullu condition. Days taken for appearance of flower buds was earlier in S1 (Kharif season) as compared to winter season which took 36.28 and 43.65 days respectively. Comparatively high temperature and relative humidity prevailing during the Kharif season might have

influenced this character significantly and the plants might have entered into reproductive phase earlier. Similar results have been reported by Adil et al (2013) who recorded earlier spiking in gladiolus under warmer temperature. Days taken for appearance of flower bud was earliest (25.66 days) in New Wave (V1) grown under Kharif season and the maximum delay (50.61 days) was observed in Orange Matrix (V2) grown in winter season.

The performance of Nov Cento was the best which produced maximum number of flower buds per shoot (4.08) followed by Monte Negro (3.63) and New Wave (3.33). On the other hand the minimum number of flower buds per shoot (2.18) was recorded in Orange Matrix (V2). Similar variation in number of flower buds per shoot due to varieties was reported by Barik (2013) in Asiatic lilium hybrids and Kumar et al (2010) in carnation. Growing seasons had no significant influence on number of flower buds produced per shoot. However plants grown under winter season exhibited better performance with respect to number of flower buds and their width as compared to Kharif season. Number of flower buds per shoot was maximum (4.50) in Monte Negro (V5) grown in winter season followed by Nov Cento (V4) grown in the same season. On the other hand the minimum (1.94) number of flower buds was recorded in Orange Matrix (V2) grown in Kharif.

In the present investigation duration of flowering was not significantly influenced by varieties under trial. However maximum (12.04 days) duration of flowering was noticed in Nov Cento (V4) whereas minimum (9.92 days) was recorded in Orange Matrix (V2).

Significant variation was observed among the varieties with respect to bloom life. The maximum bloom life (6.47 days) was recorded in Monte Negro (V5) which was followed by Alaska (5.93 days) and New Wave (5.61 days) whereas the lowest was recorded in Nov Cento (V4) which had a bloom life of 4.65 days only. Variation in bloom life among the lilium varieties as observed in the present study is attributed to the difference in genetic makeup of the varieties and further might be due to its interaction with the growing season. Wide variation in floral parameters of lilium due to varieties has also been reported by Dhiman (2003). Interaction of variety and season also had significant influence on bloom life. Monte Negro (V5) grown in winter recorded highest (8.67 days) bloom life. Irrespective of season, Monte Negro (V5) had the highest bloom life and irrespective of variety bloom life was highest under winter. Therefore obviously it would be expected that V5 x S2 should have produced the highest bloom life. On the other hand the lowest (4.17 days) bloom life was recorded in Nov Cento (V4) grown in Kharif season.

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