

Research
Paper

Evaluation of Asiatic liliium under sub-tropical mid hills of Meghalaya

RAJIV KUMAR, VANDANA VERMA PATEL, BIDYUT C. DEKA,
J.P. SINGH AND S.S. SINDHU

See end of the paper for authors' affiliations

Correspondence to :

RAJIV KUMAR

ICAR Research Complex for
NEH Region, UMIAM
(MEGHALAYA) INDIA
Email : flori_rajiv@yahoo.
co.in

ABSTRACT

An experiment was laid out during 2008-09 with 8 Asiatic liliium cultivars, viz., Avelino, Botticelli, Farfalla, Brunello, Detroit, Gironde, Navona and Vermeer to evaluate cut flower production in Meghalaya. The plant height (52.86 cm), leaf length (8.64 cm), bud diameter (2.70 cm), petal breadth (5.12 cm), bulb diameter (5.40 cm) were higher in cv. AVELINO. Whereas, maximum number of leaves per plant (104.53), pedicel length (7.84 cm), bulb height (4.43 cm), number of scales per bulb (63.66) were higher in cv. BOTTICELLI. The flower diameter (17.36 cm), bud lengths before opening (10.07 cm), petal length (10.59 cm), bulb weight (56.66 cm) were longer in cv. DETROIT. However, number of leaves (101.13) and flowers (4.93)/plant were higher in Gironde, while plant girth was higher (6.19 mm) in Brunello and Vermeer recorded higher leaf breadth (1.74 cm).

Kumar, Rajiv, Patel, Vandana Verma, Deka, Bidyut C., Singh, J.P. and Sindhu, S.S. (2011). Evaluation of Asiatic liliium under sub-tropical mid hills of Meghalaya, *Adv. Res. J. Crop Improv.*, 2 (2) : 257-259.

KEY WORDS : Bulb, Evaluation, Liliium, North eastern region

Lilium is one of the most handsome and popular ornamental bulbous plants. The appearance, beauty and colour of the bloom are very spectacular and attractive. Lilies are exceptionally useful as cut –flowers and pot plants. Many lilies also produce a charming effect when planted in front of shrubs in the garden in large beds or borders lilies produce a showy display. Lilium belongs to the family Liliaceae. It is a herbaceous perennial having scaly bulb. Stems are unbranched, smooth or pubescent, usually bright green, sometimes tinged purple or brown and generally clothed with leaves.

RESEARCH PROCEDURE

Considering the importance of crop and varied climatic conditions prevailing in northeastern region, an experiment was laid out with 8 Asiatic cultivars, viz., Avelino, Botticelli, Farfalla, Brunello, Detroit, Gironde, Navona and Vermeer to evaluate for cut flower production under natural conditions during the 2008-09 in Meghalaya.

The bulbs of 10/12 grade were planted on the raised beds of 1.5 m x 1.5 m with a spacing of 20 cm x 15 cm. Five randomly selected plants per replication were taken for recording observations on various growth, flowering

and bulb parameters. The experiment was laid out in Randomized Block Design (RBD) with three replications and the data were analyzed statistically.

RESEARCH ANALYSIS AND REASONING

Mean performance of cultivars for vegetative growth (Table 1) reflected the variation among the cultivars. Significantly maximum plant height (52.86 cm) was recorded in Avelino, followed by Botticelli (50.13 cm) where as minimum (33.86 cm) was recorded in Navona. Ideally short plants are suitable for small pot plant, medium plants for landscape and tall plants for cut flowers. Significantly maximum number of leaves/plant (104.53 and 101.13, respectively) was produced from Botticelli and Gironde. Maximum leaf length (8.64 cm) and breadth (1.74 cm) were noted in Avelino and Vermeer, respectively. Maximum plant spread (17.13 cm) was in Avelino, followed by Detroit (15.43 cm), whereas highest plant girth (6.19 mm) at centre of plant was recorded in Brunello, followed by Farfalla (5.83 mm). Variation in the vegetative parameters of Asiatic liliium has been reported by Dwivedi *et al.* (2002) and Pandey *et al.* (2008).

Significantly largest flower (17.36 cm) was obtained

Table 1 : Vegetative growth parameters of liliium cultivars under sub-tropical mid hills of Meghalaya

Cultivars	Plant height (cm)	Leaves/ plant	Leaf length (cm)	Leaf breadth (cm)	Plant spread (cm)	Plant girth at centre (mm)
Avelino	52.86	94.20	8.64	1.10	17.13	5.71
Botticelli	50.13	104.53	4.83	0.54	13.50	5.14
Farfalla	40.80	94.93	6.20	1.08	11.86	5.83
Brunello	39.73	99.26	4.94	0.61	12.60	6.19
Detroit	38.46	77.53	7.93	1.16	15.43	5.64
Gironde	44.33	101.13	5.70	0.85	10.76	5.53
Navona	33.86	82.66	4.68	0.72	8.96	5.44
Vermeer	34.40	76.26	3.68	1.74	10.10	5.47
S.E.±	1.46	4.20	0.34	0.20	0.50	0.25
C.D. (P=0.05)	3.13	9.00	0.74	0.43	1.07	0.54

Table 2 : Flowering parameters of liliium cultivars under sub-tropical mid hills of Meghalaya

Cultivars	Flower colour	Flower diameter (cm)	Flowers/ plant	Bud length before opening (cm)	Bud diameter (cm)	Pedicel length (cm)	Petal length (cm)	Petal breadth (cm)
Avelino	Yellow	16.36	2.00	9.18	2.70	7.44	9.63	5.12
Botticelli	Orange	16.86	3.86	8.55	2.31	7.84	10.27	4.60
Farfalla	Yellow	15.46	4.46	8.74	2.38	5.30	9.46	4.50
Brunello	Orange	15.30	3.86	8.70	2.25	5.08	9.60	4.60
Detroit	Red	17.36	1.73	10.07	2.29	4.82	10.59	4.98
Gironde	Yellow	14.36	4.93	7.98	2.14	7.21	8.97	4.31
Navona	White	13.20	4.06	7.08	2.14	5.63	7.71	3.62
Vermeer	Pink	14.83	3.20	7.26	2.24	4.70	7.91	4.52
S.E.±		0.459	0.265	0.258	0.068	0.330	0.167	0.181
C.D. (P=0.05)		0.984	0.563	0.553	0.145	0.707	0.358	0.388

Table 3 : Bulb and bulblet production of liliium cultivars under sub-tropical mid hills of Meghalaya

Cultivars	Bulb weight (g)	Bulb diameter (cm)	Bulb height (cm)	Bulblets/ bulb	Scales/ bulb	Propagation coefficient (%)
Avelino	53.66	5.40	3.88	5.60	40.66	151.42
Botticelli	56.00	5.22	4.43	1.20	63.66	160.00
Farfalla	44.00	4.79	3.82	2.00	46.33	125.71
Brunello	50.33	5.00	3.72	1.80	45.66	142.85
Detroit	56.66	5.12	4.26	2.80	35.00	161.88
Gironde	46.33	4.91	3.84	1.26	41.00	131.42
Navona	37.66	4.67	3.33	1.13	56.66	105.71
Vermeer	44.66	4.88	3.45	1.20	31.66	128.57
S.E.±	2.33	0.169	0.139	0.123	2.48	4.32
CD (P=0.05)	4.99	0.362	0.298	0.201	5.31	9.21

from red flowered Detroit, followed by orange flowered Botticelli (16.86 cm) and yellow flowered Avelino (16.36 cm) (Table 2). Maximum number of flowers per plant (4.93 and 4.46, respectively) was observed in Gironde and Farfalla, while it was minimum in Detroit (1.73). Detroit showed longest bud (10.07 cm) before opening, followed by Avelino (9.18 cm). Maximum flower bud diameter (2.70 cm) was noted in Avelino, while longest pedicel (7.84 cm and 7.44 cm, respectively) was recorded from Botticelli

and Avelino. Longest petal (10.59 cm and 10.27 cm, respectively) was measured from Detroit and Botticelli, whereas petal breadth was maximum (5.12 cm) in Avelino. Differences in flowering parameters may be due to their genetic make up. Wide variation in floral parameters has also been reported by Dhiman (2003), Sindhu (2006) on Asiatic liliium and Chitra and Rajamani (2009) on glory lily (*Gloriosa superba* L.).

Data presented in Table 3 showed significant

differences for all the bulb and bulblet production parameters. Heaviest bulb (56.66 g and 56.00 g, respectively) was produced by Detroit and Botticelli. Avelino produced thickest (5.40 cm) bulb, followed by Brunello (5.00 cm). Variation in bulbs/plant and bulb diameter has been reported (Sindhu, 2006). Maximum height of bulb (4.43 cm) was found in Botticelli, followed by Detroit (4.26 cm). Significantly maximum number of bulblets per bulb (5.60) was counted from Avelino and Botticelli and Navona produced more number of scales per bulb (63.66 and 56.66, respectively) than the other varieties studied. Highest propagation coefficient (161.88%) was found in Detroit, followed by Botticelli (160.00%) while it was lowest in Navona.

Authors' affiliations:

VANDANA VERMA PATEL AND BIDYUT C. DEKA, ICAR Research Complex for NEH Region, UMIAM (MEGHALAYA) INDIA

J.P. SINGH, Swami Kalyan Dev Horticulture Research and Training Institute, MUZAFFARNAGAR (U.P.) INDIA

S.S. SINDHU, Indian Agricultural Research Institute, Pusa, NEW DELHI, INDIA

LITERATURE CITED

Chitra, R. and Rajamani, K. (2009). Evaluation of different glory lily (*Gloriosa superba* L.) genotypes for vegetative, floral and yield characters. *Agric. Sci. Digest*, **29**(3): 190-193.

Dhiman, M.R. (2003). Evaluation of Liliium hybrids under Kullu conditions. *J. Orna. Hort.*, **6**(2): 154-155.

Dwivedi, Sanjai, K., Attrey, D.P., Eli, Paljor and Kareem, Abdul (2002). Introduction and evaluation of Asiatic Liliium in cold arid conditions of Ladkh. *Floriculture Research Trend in India*. Proceedings of the National Symposium on Indian Floriculture in the new millennium, Lal-Bagh, Bangalore, 25-27 February, pp. 293-294.

Pandey, R.K., Dogra, Sheetal, Sharma, J.P. and Jamwal, Shivani (2008). Evaluation of Asiatic hybrid lily cultivars under subtropical conditions of Jammu region. *J. Plant Sci. Res.*, **24**(2): 213-214.

Sindhu, S.S. (2006). Evaluation of liliium cultivars under north Indian conditions. *Haryana J. Hort. Sci.*, **35** (3&4): 270-274.

