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## Performance of dahlia (*Dahlia variabilis* L.) genotypes for floral and yield attributes

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### Abstract

The experiment on “Performance of dahlia (*Dahlia variabilis* L.) genotypes for floral and yield attributes” was carried out at the Department of Floriculture and Landscape Architecture, College of Horticulture, Sirsi, University of Horticultural Sciences, Bagalkot, Karnataka with a view to find out the best genotypes for floral and yield characters. Among 35 genotypes HUBD-26 recorded minimum days to flowering (31.40 days), maximum flower yield per plant (559.03 g) and flower yield per hectare (207.05 q). Whereas Genotype HUBD-21 recorded longest duration of flowering (84.80 days) and HUBD-30 (13.52 cm) showed highest flower diameter. The number of petals per flower was recorded maximum (104.30) in genotype HUBD-25.

**Keywords:** HUBD-horticulture University of Bagalkot dahlia

### Introduction

Dahlia (*Dahlia variabilis* L.) is half hardy herbaceous perennial plant, stems are erect, branched, glabrous and having tuberous root. It belongs to the family Asteraceae and originated from Mexico (Pandey *et al.*, 2017) <sup>[9]</sup>. In honor of the Swedish botanist Dr. Andréa’s Dahl (pupil of Linnaeus) it was named as dahlia, from where it was first introduced into Madrid (Spain) in 1789 and other European countries. Dahlia was introduced to India during 1857 by Agri-Horticultural Society of India (Smith, 1971) <sup>[13]</sup>.

Dahlia is one of the most important garden plant having multitude of colors, variation in flower size {ranging from miniature (2.5 cm) to giant (40 cm)}, attractive shapes and forms. It’s attractive flower and easy cultivation has made them immensely popular. They are easy to grow both in ground and pot, and extensively used for exhibition, garden display and home decoration. Cut flowers of pompon and miniature types stay fresh in flower vases for many days and also make moderately good garlands (Ajeet *et al.*, 2015) <sup>[1]</sup>. As dahlia is still called an uncut diamond for India, evaluation is the stepping stone in order to utilize any crop to its full potential. Considering the importance of this crop experiment was conducted with the objective of performance of dahlia (*Dahlia variabilis* L.) genotypes for floral and yield attributes.

### Material and Methods

The experiment entitled with “performance of dahlia (*Dahlia variabilis* L.) genotypes for floral and yield attributes” was carried out at the Department of Floriculture and Landscape Architecture, College of Horticulture, Sirsi, University of Horticultural Sciences, Bagalkot, Karnataka with 35 genotypes of dahlia *viz.* HUBD-1 to HUBD-35 were planted according to randomized block design with two replications. All recommended package of practices were carried out to grow the successful crop. Observations were recorded on all the indicating characters *viz.* days to first flowering, days to 50 per cent flowering, duration of flowering (days), flower diameter (cm), number of petals per flower, flower yield per plant (g) and flower yield per hectare (q).

### Results and Discussion

All the characters were significantly differed under the study (Table 1). Genotype HUBD-26 was early by taking minimum of 31.40 days to flower, while, HUBD-35 was late (59.50 days) for first flowering with a grand mean of 46.91 days. Whereas genotype HUBD-25 took less number of days (55.40) to 50 per cent flowering. Whereas HUBD-6 was late by taking 95.40 days to 50 per cent flowering and which is followed by HUBD-10 (93.65 days) with a grand

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mean of 74.88 days. These variations for flowering characters may be contributed by genetic make-up. Same variations in

flowering habits in dahlia genotypes was noticed by Mishra *et al.* (2001) [7], Gupta *et al.* (2015) and Baburao *et al.* (2018<sup>2</sup>).

**Table 1:** Performance of dahlia genotypes for floral and yield attributes

Genotypes	Days to first flowering	Days to 50% flowering	Duration of flowering (Days)	Flower diameter (cm)	Number of petals/flower	Flower yield per plant (g)	Flower yield/ha(q)
HUBD-1	44.55	85.45	60.50	10.32	52.90	213.56	79.10
HUBD-2	45.25	78.80	63.10	8.52	43.00	154.88	57.36
HUBD-3	45.80	60.00	52.80	7.04	52.50	413.20	153.04
HUBD-4	52.50	74.00	60.80	7.75	36.50	128.65	47.65
HUBD-5	50.25	76.45	60.90	8.38	51.30	166.65	61.72
HUBD-6	42.40	95.40	73.50	6.41	26.20	446.75	165.46
HUBD-7	56.40	67.45	46.90	10.18	93.10	377.16	139.69
HUBD-8	45.15	79.80	67.40	8.04	55.10	225.77	83.62
HUBD-9	44.70	73.90	68.00	10.49	46.40	286.59	106.15
HUBD-10	55.15	93.65	64.60	12.17	73.30	337.32	124.93
HUBD-11	46.90	78.10	64.00	6.61	45.00	132.09	48.92
HUBD-12	47.95	81.50	61.00	6.92	77.00	300.55	111.31
HUBD-13	50.45	65.40	63.30	6.22	19.90	68.11	25.23
HUBD-14	48.45	68.20	56.30	5.93	30.10	57.53	21.31
HUBD-15	54.35	66.10	62.90	8.15	21.90	292.51	108.34
HUBD-16	44.10	85.00	72.10	7.51	63.90	205.35	76.06
HUBD-17	33.40	67.20	70.20	9.27	86.40	515.88	191.07
HUBD-18	43.90	84.35	71.90	9.35	29.60	140.95	52.20
HUBD-19	47.50	63.80	71.60	12.62	34.00	237.55	87.98
HUBD-20	49.40	62.30	82.00	10.63	69.30	320.88	118.84
HUBD-21	47.20	63.00	84.80	11.33	71.70	307.55	113.91
HUBD-22	47.50	74.90	62.90	7.67	48.70	120.35	44.57
HUBD-23	35.40	67.00	55.60	9.30	39.35	497.76	184.36
HUBD-24	54.25	76.00	60.80	9.51	36.30	134.46	49.80
HUBD-25	41.65	55.40	56.70	4.46	104.30	241.66	89.50
HUBD-26	31.40	61.60	60.50	9.10	72.80	559.03	207.05
HUBD-27	39.40	88.80	73.50	10.38	67.60	491.84	182.16
HUBD-28	52.10	79.90	59.40	8.77	52.90	115.52	42.78
HUBD-29	45.60	66.30	62.80	6.55	32.90	132.12	48.93
HUBD-30	40.80	89.65	70.20	13.52	69.90	421.33	156.05
HUBD-31	47.30	74.60	61.70	8.67	51.80	242.88	89.96
HUBD-32	49.00	94.00	63.70	12.50	86.50	172.61	63.93
HUBD-33	46.30	89.80	69.20	9.35	81.10	359.29	133.07
HUBD-34	55.75	60.60	57.10	3.52	94.90	151.71	56.19
HUBD-35	59.50	72.25	59.70	11.20	45.20	206.82	76.60
Mean	46.91	74.88	64.35	8.82	56.10	262.20	97.11
S.Em±	2.33	3.31	2.53	0.46	4.06	21.01	7.78
CD at 5%	6.70	9.50	7.27	1.32	11.66	60.37	22.36
CV	7.02	6.24	5.56	8.66	10.23	11.33	11.33

Genotype HUBD-21 (84.80 days) showed longest duration of flowering with a grand mean of 64.35 days while, HUBD-7 had short duration of flowering (46.90 days). Similar results were obtained in dahlia by Vikas *et al.* (2011) [15], Gupta *et al.* (2015) [4] and Verma and Kulkarni (2017) [14] in dahlia. The diameter of flower was maximum in HUBD-30 (13.52 cm) whereas, HUBD-19 (12.62 cm) was at par with HUBD-30 and minimum flower diameter of 3.52 cm noticed in HUBD-34 with a grand mean of 8.82 cm. The variation in flower diameter may be depend on nutrient applied and vegetative growth of the plant. These results were in conformity with the results reported earlier in dahlia by Kumar *et al.* (2010) [5], Shukla *et al.* (2018) [12] and Narayan *et al.* (2016) [8] in gerbera.

The number of petals per flower was recorded maximum (104.30) in genotype HUBD-25 which was at par with HUBD-7 (93.10) with grand mean of 56.10 while, minimum number of petals (19.90) were registered in genotype HUBD-

13. These are in accordance with study conducted by Rajiv *et al.* (2011) [11] in liliun, Kumar *et al.* (2015) [6] in chrysanthemum and Biswal *et al.* (2017) [3] in gerbera. Flower yield per plant and flower yield per hectare was recorded maximum in the Genotype HUBD-26 (559.03 g, 207.05 q respectively) which was on par with genotype HUBD-17 (515.88 g, 191.07 q respectively) and minimum was recorded in HUBD-14 (57.53 g, 97.11 q respectively). Same out come was seen in China aster by Zosiamlia *et al.* (2012) [16] and in marigold by Patokar *et al.* (2018) [10].

### Conclusion

On the basis of present investigation it is concluded that, out of thirty five genotypes HUBD-26 recorded minimum days to flowering, maximum flower yield per plant and flower yield per hectare. Whereas Genotype HUBD-21 recorded longest duration of flowering, HUBD-30 showed highest flower diameter.

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