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Performance of gladiolus cultivars under Chhattisgarh plain condition

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Abstract
The present investigation entitled "Performance of gladiolus cultivars under Chhattisgarh plain condition" was conducted at the Pt. K. L. S. College of Horticulture and Research Station Pendri Farm Rajnandgaon (C.G.) during Rabi season October-April 2018-19. The experiment was laid out in randomized block design (RBD) with 8 treatments (cultivars) and three replications. With respect to flowering yield and quality parameter, the cultivar Chipper White was taken minimum number of day (58.73) for spike initiation, the spike length was significantly higher in cultivar Summer Sunshine (75.33cm), the cultivar Chipper White (68.20) was taken minimum number of day taken for basal floret to show colour, the maximum number of florets per spike (12.86) as well as maximum (57.53cm) length of rachis was observed in cultivar Summer Sunshine, the maximum number (2.86) of florets opened at a time and highest flowering duration (23.93) was recorded in cultivar Summer Sunshine. The maximum day to vase life (7.06) in tap water of gladiolus was observed in the cultivar Summer Sunshine.

Keywords: Gladiolus, cultivars, flower characters, vase life

Introduction
Gladiolus belongs to family *Iridaceae* and Sub-family *Ixiodeae* originated from South Africa. The current number of species in the genus is 255 (Pragya *et al*., 2010) [4]. It is one of the most important among the bulbous ornamentals for cut flower trade in India. It is also ideal both for garden display and floral arrangements for table and interior decoration as well as making high quality bouquet. Gladiolus is additionally useful for flower beddings.in gardens, pot crops, rockeries etc (Abbasi *et al.* 2005) [1].

The state of Chhattisgarh is one of the potential areas for commercial cultivation of Gladiolus. There is a heavy demand for flowers during marriage, festivals and other social functions. There is a big gap between supply and demand that local growers can use their advantage. Gladiolus is one of the dominant flowers in the flower market of Chhattisgarh is blessed with many natural advantages such as abundant sunshine and favourable temperatures for its growth. There is much scope for increase Gladiolus cultivation in Chhattisgarh.

The performance of any crop or cultivar largely depends on genotypic constituent and effect of environmental condition. As a result, cultivars which perform well in one region may not perform the same in other regions of varying climatic conditions (Panday, 2012). Hence, the present experiment was conducted to Performance of different gladiolus cultivars under Chhattisgarh plain condition.

Materials and Methods
The experimental was carried out in the Pt. K. L. S. College of Horticulture and Research Station Pendri Farm Rajnandgaon Chhattisgarh. Geographical situation is Rajnandgaon situated on the bank of Shivnath and falls between 21°06'N latitude and 81°02' E longitude at a height of 307 meter above the mean sea level. Healthy corms of 8 cultivars (Har Majesty, Red Majesty, Chipper White, Souvik, American Beauty, Summer Sunshine, Saffron and Local cultivar.) were planted at 30×20 cm spacing in October, 2018. The experiment was laid out in Randomized Block Design (RBD) with three replications. All cultural operations were uniformly done for all the cultivars. Observations were recorded on flowering attribute and vase life in tap water under ambient condition and data were analyzed statistically.

Results and Discussion
Flowering yield and quality parameters
Various flowering yield and quality parameters were influenced significantly due to response of varieties (Table 1&2). The cultivar Chipper White was taken minimum number of day for spike initiation (58.73) which was showed at par with cultivar American Beauty (61.80), Har

Majesty (66.40) and Local cultivar (66.06). However it was significantly earlier than other cultivars. Souvik (74.06) took maximum day for spike initiation.

The spike length was significantly higher in cultivar Summer Sunshine (75.33cm) which was at par with cultivar Chipper White (71.33cm), Red Majesty (70.46cm) and Har Majesty (67.0 cm). However it was showed significant difference with other cultivars. The minimum spike length was observed in cultivar American Beauty (60.86cm). The variation in spike length might be due to differences in genetic constitution of genotypes which show their character in one generation to next generation. Related results were also reported by Arora *et al.* (2002) [2], Rani *et al.* (2007) [5] and Sindhu *et al.* (2014) [7].

The cultivar Chipper White (68.20) was taken minimum number of day taken for basal floret to show colour which was at par with cultivar American Beauty (70.06), Har Majesty (74.46) and Local cultivar (74.60). It was significantly earlier then other cultivars. The cultivar souvik (82.40) took maximum day for basal floret to show colour. The length of rachis observed maximum (57.53cm) in cultivar Summer Sunshine which was at pat with cultivar Red Majesty (55.73cm), Chipper White (55.26cm) and Har Majesty (51.06cm) and the minimum length of rachis was recorded in cultivar American Beauty (42.53cm).

The maximum number of florets per spike was recorded in cultivar Summer Sunshine (12.86) which was as par with cultivar Chipper White (12.46), Har Majesty (12.20) and Souvik (11.80) and the minimum number of florets per spike was recorded in cultivar American beauty (10.33).

The number of florets depended on the cultivar to cultivars might be due to hereditary traits of the cultivar of the gladiolus, which is governed by genetic makeup of the plants. Similar results have been reported by Ram *et al*. (2005) [6]. The maximum number of florets opened at a time was recorded in cultivar Summer Sunshine (2.86) which was at par with cultivar Har Majesty (2.06), Chipper White (2.0) and Souvik (2.0) and the minimum number of floret opened at a time was observed in cultivar Saffron (1.66).

The cultivar Summer Sunshine was recorded highest flowering duration (23.93) which was at par with cultivar Chipper White (22.93), American Beauty (22.66) and Local cultivar (21.26). It was significantly greater than the other cultivar of the gladiolus. The cultivar Har Majesty was recorded lowest flowering duration (18.80). Flowering duration differ from cultivar to cultivars might be due to hereditary traits of the cultivars as well as environmental factors, which is governed by the genetic makeup of the plants.

Vase life of cut flower (day)

The flower spikes were held in the laboratory at ambient room temperature. The maximum day to vase life (7.06) in gladiolus was observed in the cultivar Summer Sunshine followed by Saffron (7.80) and Chipper White (7.73) and the minimum day to vase life was noted observed in cultivar American Beauty (5.26).

Table 1: Performance of gladiolus cultivars for flowering yield and quality parameters

Treatment	Number of day taken for spike initiation	Day taken for basal floret to show colour	Spike length (cm)	Rachis length (cm)
Har Majesty	66.40	74.46	67.00	51.06
Red Majesty	68.66	77.80	70.46	55.73
Chipper White	58.73	68.20	71.33	55.26
Souvik	74.06	82.40	64.73	49.20
American Beauty	61.80	70.06	60.86	42.53
Summer Sunshine	70.60	79.40	75.33	57.53
Saffron	70.26	78.40	62.93	44.66
Local cultivar	66.06	74.60	62.26	45.66
S.EM±	0.74	0.80	1.21	1.46
C.D at 5%	2.28	2.46	3.70	4.49

Table 2: Performance of gladiolus cultivars for flowering yield and quality parameters and vase life

Treatment	Number of florets per spike	Floret opened at a time	Flowering duration (day)	Vase life of cut flower (day)
Har Majesty	11.06	2.06	18.80	5.46
Red Majesty	12.20	1.93	19.00	6.06
Chipper White	12.46	2.00	22.93	6.73
Souvik	11.80	2.00	20.06	5.80
American Beauty	10.33	1.93	22.66	5.26
Summer Sunshine	12.86	2.86	23.93	7.06
Saffron	10.60	1.66	19.46	6.80
Local cultivars	10.66	1.87	21.26	5.33
S.EM±	0.14	0.13	0.72	0.18
C.D at 5%	0.44	0.41	2.23	0.55

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