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Response of Commercial Varieties of Gladiolus (*Gladiolus grandiflorus Linn.*) on Agro-Climatic Conditions of Chitrakoot, Satna (M.P.), India

Abhishek Singh[1]* and S.S. Singh[2]

[1]Department of Crop Science, Faculty of Agriculture, Mahatma Gandhi Chitrakoot,
[2]Gramodaya Vishwavidyalaya, Chitrakoot, Satna M.P., India

**Corresponding author:*

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A B S T R A C T

The present investigation was conducted during rabi season 2015-16 at agriculture research block, faculty of agriculture – Rajula, MGCGVV University, Chitrkoot, satna, M.P, India. The experiment was carried out with the performance of fifteen varieties of Gladiolus (*Gladiolus grandiflorus* L.) to study growth and flowering characters under Agro climatic condition of Chitrkoot. The character Yield of spike (No.) plant-1 exhibited a wide range of variation 2.47 to 1.07.with a grand mean of 1.67. The highest Yield of spike (No.) plant-1 of genotype salvia (2.47) followed by Priscilla and Red ginger. While lowest Yield of spike (No.) plant-1was observed for pacifica (1.07). Yield of spike (Lakh No.) plant-1. The character Yield of spike (lakh No.) plant-1 exhibited a wide range of variation 5.48 to 2.37 with a grand mean of 3.70. The highest Yield of spike (Lakh No.) plant-1 of genotype salvia (5.48) followed by Priscilla and Red ginger. While lowest Yield of spike (Lakh No.) plant-1 was observed for pacifica (2.37).Vase life of cut flowers (days).The character of vase life of cut flower (days) exhibited a wide range of variation17.07 to 10.07 with a grand mean of 13.21. The highest vase life of gladiolus flower (days) of genotype salvia (17.07) followed by Priscilla and Red ginger. While lowest vase life of cut flower (days) was observed for pacifica (10.07). Physiological character leaf area index show wide range of variation 0.218 to 0.120 with a grand mean of 0.157.the leaf area per plant, specific leaf area of genotype salvia maximum followed by parecilla and red ginger and minimum in pacifica.

Introduction

Gladiolus (*Gladiolus hybridus* Hort L.) belongs to the family Iridaceae. It is one of the largest genera with more than 300 species and was introduced for cultivation towards the end of 16th century (Innes, 1985). Of these only a small number have been used in the development of cultivated gladiolus. The gladiolus (*Gladiodus grandiflorus Linn*.) is horticulturally the most important member of the Iridacae or great Iris family and has long been the most popular of all summer-flowering bulbous plants, ranking in general usefulness even such prime favorites as the dahlia, the canna and the lily. Almost one

hundred and fifty species have been from time to time described by botanists. Gladiolus is an important flower crop of floriculture which used all over the world. This flower is very popular, and is becoming more and more of a favorite every year. It possesses a combination of characteristics that commend it to all flower lovers. It is easily grown, and may be had in bloom about four months in the year without the aid of glass. The blossoms are beautiful in form, and include a wonderful range of colors, with almost innumerable combinations. Its general habit of bearing two rows of flowers facing the same way makes it easy to arrange so as to show all to the best advantage. It has a capacity for taking up water which enables it to go on blooming to the very tip of the spike after being cut, lasting a week in the hottest weather, and twice that time when cooler. The ease with which the stem can be divested of its faded flowers, leaving it as fresh as though just brought from garden, is also a great recommendation. Some years ago, I expressed a quantity of the spikes from Cuyahoga Falls, Ohio, to Butte, Montana. They were in bud when started, and when they arrived, had bloomed half way up the stalks, and the lower flowers had faded. These were taken off, the stems placed in water, and the buds went on opening to the last, unaffected by the journey of two thousand miles keeping the facts in view the present investigation was planned in rabi sesson 2015-16 to find out the response of fifteen most commercial varieties on agro-climatic conditions of Chitrakoot, Satna (M.P.)

Materials and Methods

The present investigation will be conducted at M.G.C.G. Vishwavidyalaya, Chitrackoot, (Satna) entitled "Response of commercial varieties of Gladiolus *(Gladiodus grandiflorus Linn.)* on agro-climatic conditions of Chitrakoot, Satna (M.P) The present trial was conducted at agriculture farm of Mahatma Gandhi Chitrakoot Gramodya Vishwavidyalaya, Chitrackoot, Satna (m.p) which is located 80°21′ to 81°23′ East longitude and 23°58′ to 25°12′North latitude. The altitude of Chitrakoot Satna is 317 meters above mean sea level. The experiment was laid out in R.B.D. with three replications and genotypes). Observation on above aspect where taken on growth**,** physiological and quality characters that is Plant height (cm), Number of leaves//plant, Length of pseudo stem, Length of Spike (cm**),** Number of florets/ spike, Self life of cut flowers of different varieties, Vase life of cut flowers of different varieties, Leaf Area Index, Specific Leaf Area respectively. Fifteen varieties of gladiolus were selected for this study. The name of genotypes and source are noted below

Results and Discussion

Date portrayed in table 1 indicated paramount variation among the fifteen genotypes for sixteen characters in present investigation. The mean values, range, grand mean, coefficient of variation and critical analysis of fifteen genotypes for different growth, flowering, physiological characters which exhibited wide range of variation that is 22.60 to 14.13 along with grand mean 16.76. Among various genotypes pacifica brought large number of days to sprouting followed by Regency and yellow stone and lowest days to sprouting was noticed in Salvia. The plant height and growth character was also differed with respect to variation ie 123.87 to 108.40 along with grand mean of 115.08 Salvia was the first and foremost cultivar which could brought height of the plant ie (123.87cm) followed by Priscilla and Red ginger, among the fifteen geno types, however lowest was in pasfica (Table 2).

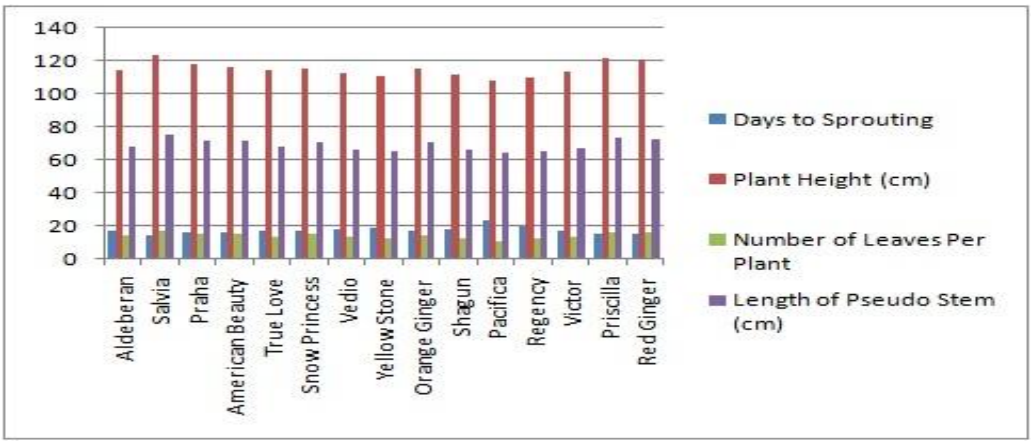
Table.1 List of genotypes

S.No.	Name of Genotypes	Source of Corm
1	Aldeberan	National Botanical Research Institute, Lucknow
2	Sylvia	National Botanical Research Institute, Lucknow
3	Praha	National Botanical Research Institute, Lucknow
4	American beauty	National Botanical Research Institute, Lucknow
5	True love	National Botanical Research Institute, Lucknow
6	Snow Princess	National Botanical Research Institute, Lucknow
7	Vedio	National Botanical Research Institute, Lucknow
8	Yellow Stone	National Botanical Research Institute, Lucknow
9	Orange Ginger	National Botanical Research Institute, Lucknow
10	Shagon	National Botanical Research Institute, Lucknow
11	Pacifica	National Botanical Research Institute, Lucknow
12	Rogency	National Botanical Research Institute, Lucknow
13	Victor	National Botanical Research Institute, Lucknow
14	Priscilla	National Botanical Research Institute, Lucknow
15	Red Ginger	National Botanical Research Institute, Lucknow

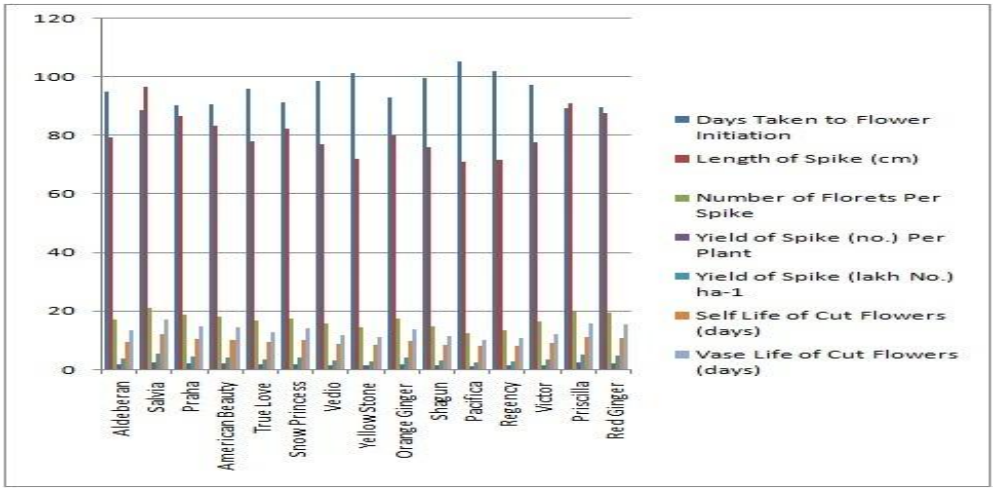
Table.2 Mean performance of 15 varieties for growth, flowering and physiological characters of Gladiolus (*Gladiolus grandiflorus* L.) – (2015 – 16)

S. No	Character	Days to Sprouting	Plant Height (cm)	Number of Leaves Per Plant	Length of Pseudo Stem (cm)	Days Taken to Flower Initiation	Length of Spike (cm)	Number of Florets Per Spike	Yield of Spike (no.) Per Plant	Yield of Spike (lakh No.) ha-1	Self Life of Cut Flowers (days)	Vase Life of Cut Flowers (days)	Leaf Area Per Plant (cm-2)	Leaf Area Index (LAI)	Specific Leaf Area (SLA)	Specific Leaf Weight (SLW)	harvest Index
1.	Aldeberan	16.40	114.80	13.60	67.93	94.87	79.47	16.93	1.67	3.71	9.40	13.33	68.07	0.15	65.28	0.01	30.60
2.	Salvia	14.13	123.87	16.73	75.07	88.53	96.53	21.00	2.47	5.48	11.87	17.07	97.93	0.22	105.20	0.01	37.67
3.	Praha	15.33	118.13	14.87	71.47	90.33	86.80	18.60	1.93	4.29	10.27	14.73	84.27	0.19	84.20	0.01	30.70
4.	American Beauty	15.80	116.47	14.47	71.20	90.73	83.20	18.00	1.87	4.15	10.07	14.47	71.13	0.16	79.00	0.01	30.63
5.	True Love	16.67	114.33	13.20	67.60	96.00	78.07	16.67	1.53	3.41	9.27	12.67	66.87	0.15	64.50	0.02	30.60
6.	Snow Princess	16.07	115.73	14.27	70.60	91.20	82.47	17.40	1.80	4.00	9.93	14.13	70.93	0.16	75.80	0.01	30.63
7.	Vedio	17.13	112.40	12.67	66.20	98.80	77.13	15.73	1.40	3.11	8.67	11.80	60.73	0.14	58.53	0.02	30.58
8.	Yellow Stone	18.00	110.47	11.93	65.00	101.20	72.13	14.27	1.27	2.82	8.27	10.93	59.00	0.13	53.70	0.02	30.50
9.	Orange Ginger	16.27	115.07	14.07	70.20	92.87	80.07	17.20	1.73	3.85	9.67	13.73	68.73	0.15	69.93	0.01	30.63
10.	Shagun	17.67	111.20	12.20	65.47	99.73	76.00	14.73	1.33	2.96	8.47	11.33	60.60	0.14	54.40	0.02	30.57
11.	Pacifica	22.60	108.40	10.13	64.20	105.33	70.93	12.40	1.07	2.37	8.00	10.07	54.07	0.12	45.40	0.02	30.47
12.	Regency	19.00	109.60	11.47	64.80	101.93	71.53	13.33	1.20	2.67	8.13	10.73	58.53	0.13	48.55	0.02	30.50
13.	Victor	16.87	113.47	12.93	67.00	97.27	77.53	16.20	1.47	3.26	8.87	12.13	60.93	0.14	60.53	0.02	30.60
14.	Priscilla	14.60	121.40	15.40	73.27	89.27	91.13	19.60	2.20	4.89	11.07	15.80	88.33	0.20	98.13	0.01	35.50
15.	Red Ginger	14.87	120.80	15.13	72.47	89.73	87.53	19.33	2.07	4.59	10.53	15.20	88.20	0.20	98.00	0.01	32.87
	Mean	**16.76**	**115.08**	**13.54**	**68.83**	**95.19**	**80.70**	**16.76**	**1.67**	**3.70**	**9.50**	**13.21**	**70.56**	**0.16**	**70.74**	**0.02**	**31.54**
	C.V.	**2.87**	**0.27**	**1.53**	**0.31**	**0.57**	**0.83**	**3.90**	**6.88**	**6.88**	**4.33**	**3.26**	**0.61**	**1.63**	**0.56**	**2.18**	**4.80**
	S.E.	**0.28**	**0.18**	**0.12**	**0.12**	**0.32**	**0.39**	**0.38**	**0.07**	**0.15**	**0.24**	**0.25**	**0.25**	**0.00**	**0.23**	**0.00**	**0.87**
	C.D. 5%	**0.80**	**0.53**	**0.35**	**0.35**	**0.91**	**1.12**	**1.09**	**0.19**	**0.43**	**0.69**	**0.72**	**0.72**	**0.00**	**0.66**	**0.00**	**2.53**
Range	**Range Lowest**	**14.13**	**108.40**	**10.13**	**64.20**	**88.53**	**70.93**	**12.40**	**1.07**	**2.37**	**8.00**	**10.07**	**54.07**	**0.12**	**45.40**	**0.01**	**30.47**
	Range Highest	**22.60**	**123.87**	**16.73**	**75.07**	**105.33**	**96.53**	**21.00**	**2.47**	**5.48**	**11.87**	**17.07**	**97.93**	**0.22**	**105.20**	**0.02**	**37.67**

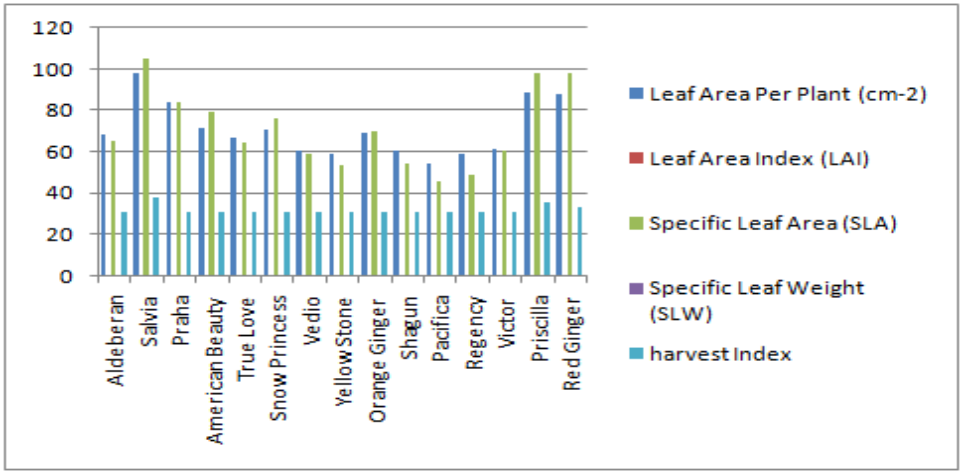
Growth Characters



Flowering Characters



Physiological Characters



The important part of plant is number of leaves that caused wide range of variation ie 16.73 to 10.13, however, among the genotypes of fifteen, Salvia produced large number of leaves *i.e.* (16.73). Psedostem was also found to be varied and grand mean was 68.83 was noted with genotype of Salvia followed by Priscilla and Red ginger. Number of florets per spike was also found to be more and maximum number of florets/ spike was recorded in Sylvia *i.e.* (21.00), however, pacifica could produce lowest florets/ spike. Large number of variation was exhibited in case \of number of spike/ plant and it was in range of 2.4 to 1.07, however, highest yield ie number of spike/ plant was noted in Salvia and it was 2.47 and pacifica could produced lowest yield where as yield of spike (lakh number)/ plant was also varied and it was noted in between 5.48 to 2.37shelf life of individual flower was also differed and highest shelf life was noted in Salvia that was 11.87 days more than others. However, pacifica showed lowest shelf life among the fifteen genotypes of gladiolus. Similarly vase life could also differ and significant variation in range was found and it was observed in between 17.07 to 10.07. Leaf area index (LAI) also showed a wide range of variation with grand mean of 0.157 and among the fifteen genotypes of gladiolus Salvia could attend more leaf area and it was 0.128. Priscilla and Red ginger specific leaf area was also noted and paramount variation was observed among the fifteen genotypes of gladiolus. The range of variation was 105.20 to 45.40 along with ground mean of 70.74 similarly specific leaf or weight was varied and exhibited a wide range of variation ie 0.22 to 0.009, however, lowest specific leaf weight was noted in Salvia *i.e.* 0.0095. It was further noted that harvest index was also differed and Salvia was able to attend highest harvest index and it was around (37.67).

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References

Anuradha, S. and Gowda, J.V.N. (1990). Genetic variability in Gladiolus Prog.Hort., 22 (1-4) 55-59.

Arora, J.S. and Khanna, K. (1986). Variability studies in some quantitative characters in gladiolus. P.AU.J. Res., 23(4): 578-582.

Balaram, M. V. and Janakiram, T. (2009). Genetic variability in gladiolus genotypes for corm characters. J. Orna. Hortic., 12(2): 123-126.

Kadam Ganesh B., Kumar Gunjeet, Saha T.N., Tiwari A.K. and Kumar Ramesh (2014). Varietal evaluation and genetic variability studies on gladiolus. Indian J. Hort. 71(3) 379-384.

Nazir, M. (2004). Cultivating gladiolus scientifically. Ind.J. Hort. 49(1):12-13.

Singh, M. J. P. (1981) Studies on flowering, corm multiplication and floral biology of gladiolus. M.Sc. thesis. I.A.R.I., New Delhi (Unpublished).

Verty P., Prasad VM., Collis JP and Nazir Manoj (2017) Correlation analysis in gladiolus (*Gladiolus grandiflorus* L.). Agri Res & Tech: Open Access J 10(4):1-6

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