Journal of Tropical Agriculture 31 (1993) : 210 - 214

INFLUENCE ON THE PERFORMANCE OF SELECTED GLADIOLUS VARIETIES

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Abstract: The performance of five varieties of gladiolus was evaluated in two seasons. The varieties differed significantly with respect to the vegetative characters, duration, spike characters, vase characters as well as corm and cormel yield in both the seasons. American Beauty excelled the other varieties in all the vegetative characters studied, in both the seasons. Blooming period was also more in this variety. In general, American Beauty and Friendship were superior in floral characters whereas Agnirekha and Mansoer Red exhibited the longest vase life. True Yellow, produced heavy corms. November planting was found to be better than April planting, in order to obtain quality spikes as well as good corm and cormel yield in gladiolus, under Kerala conditions.

INTRODUCTION

Gladiolus is said to be the queen of bulbous flowers and is rated as the most popular flower in the world, especially from the commercial point of view (Hamilton, 1976). In India, this crop is mainly grown in Srinagar, Nainital, Kalimpong and in the State of Assam. Other areas of importance are Bangalore, Pune, Delhi and Chandigarh. In Kerala, the performance and commercial potentialities of this crop have not been sufficiently evaluated. Only some preliminary studies have been conducted (Guttay and Krone, 1957; Borelli, 1984, Mukhopadhyay and Banker, 1987). This trial, conducted as part of" a series of studies is thus aimed to ascertain the effect of season of planting on the growth, quality and yield of five selected varieties of gladiolus under Vellanikkara conditions.

MATERIALS AND METHODS

The study was conducted at the College of Horticulture, Vellanikkara, Trichur in two seasons, viz., from November 1989 to April 1990 and from April 1990 to September 1990. Five varieties of gladiolus, viz., Agnirekha, American Beauty, Friendship, Mansoer Red and True Yellow were utilised for the study. The experiment was laid out in a completely randomised design with five replications, having 34 plants under each variety per replication.

Uniform sized corms were planted after treating with 0.2 per cent Bavistin. The spacing adopted was 20 cm between rows and 30 cm between plants in a row. At the time of land preparation, dried cowdung was applied at the rate of 25 t/ha. The fertilizer dose followed for basal application was 100, 60 and 60 kg N, P_2O_5 and K_2O, respectively per ha (NESA, 1970). Top dressing with 25 kg N/ha was given twice, the first dose at 45 days after planting and the second dose when harvesting of flower spikes was completed. Soil drenching with carbendazim (Bavistin, 0.2%) was done three times, two weeks and eight weeks after planting and after the harvest of spikes.

Fifty plants were randomly selected for recording field observations. For conducting vase studies (post harvest observations), 50 randomly selected spikes from each variety were cut. The spikes retained on the plant for taking other floral observations were harvested after the blooming period. Growth parameters such as plant height, number of leaves and total leaf area were recorded. The other observations included were length of the spike, number of florets per spike, vase life and number of florets opened at a time. After the harvest of the spikes plants were left undisturbed until the leaves dried. Corms were then lifted and the cormels collected. Weight and size of corms and weight of cormels were recorded.

RESULTS AND DISCUSSION

The effect of season on growth parameters of gladiolus varieties revealed that the performance was better during the first season in all the varieties (Table 1). American Beauty produced the tallest plants, maximum number of leaves and the maximum leaf area during the first and the second seasons.

Significant differences could be observed in the days taken for spike emergence, emergence to opening, blooming period and total duration of the crop (Table 2). The duration till spike emergence was the minimum in Friendship during the first and the second seasons (74.2 and 76.4 days, respectively). This was on par with American Beauty and Agnirekha during the first season and significantly superior to all other varieties during the second season. The duration from spike emergence to opening was the shortest (5.5 days) in True Yellow and was on par with Agnirekha during the first season. Monsoer Red recorded the shortest duration (5.9 days) and was on par with Agnirekha and Friendship during the second season. Blooming period was significantly superior in American Beauty (14.7 days) during the first season and in Agnirekha (9.2 days) during the second season. The total duration was minimum in Friendship during both the seasons. Mansoer Red recorded the longest duration in both the seasons.

Among the five varieties, the longest spike (62.3 cm) during the first season was produced by Friendship, which was replaced by Agnirekha (74.8 cm) during the second season. American Beauty surpassed the other varieties with 15.6 florets during the first season and Agnirekha with 14.1 florets during the second season. True Yellow was inferior in both the seasons.

A fairly long keeping quality of flower spike makes gladiolus one of the most important cut flowers. The studies revealed that the response of varieties to seasons was not uniform with respect to vase life (Table 3). The varieties Mansoer Red performed significantly well during the first season, whereas much differences were not obtained among the other varieties.

One important feature of the spike which contributes to the attractiveness is the number of florets that remain open at a time. The number of florets opened at a time was found to be better for all the five varieties during the first season (Table 3). This was significantly more (4.8 floret) in

Mansoer Red. Minimum value was recorded by American Beauty and True Yellow, which were on par with Friendship. During the second season also, maximum value was obtained in Mansoer Red (3.2 florets) whereas True Yellow recorded the minimum (1.9 florets).

The effect of seasons was very conspicuous in corm weight of all the varieties (Table 4). The first season was better in this case also. Among the varieties, True Yellow produced the heaviest corms during the first and second seasons respectively. Agnirekha recorded the minimum corm weight during the first

Table 1. Growth parameters of gladiolus as influenced by season and variety

Variety	Plant height, cm		No. of leaves		Leaf area, cm^2	
	I	II	I	II	I	II
Agnirekha	43.2	27.3	7.0	2.7	481.6	92.2
American Beauty	52.0	54.1	7.2	6.5	681.2	412.3
Friendship	45.2	45.2	5,1	5.5	454.5	286.2
Mansoer Red	41.2	41.4	4.6	4.7	388.6	239.7
True Yellow	50.4	54.4	4.8	5.6	447.0	393.2
CD (0.05)	2.5	9.5	1.8	1.3	46.0	98.7
SEm±	7.1	5.8	0.6	0.8	74.9	69.1

I = First season (Nov 1989 to April 1990)
II = Second season (April 1990 to Sept 1990)

Table 2. Crop duration of gladiolus as influenced by season and variety, days

Variety	Spike emergence		Emergence to opening		Blooming period		Total	
	I	II	i	II	I	II	I	II
Agnirekha	78.3	111.3	6.5	6.2	11.7	9.2	96.5	126.9
American Beauty	74.3	87.1	7.8	8.1	14.7	8.2	96.8	103.4
Friendship	74.2	76.4	7.2	6.5	10.7	8.4	92.1	91.3
Mansoer Red	92.4	102.2	8.2	5.9	11.0	6.3	111.6	114.4
True Yellow	82.3	83.3	5.5	7.6	8.8	6.6	96.6	97.5
CD (0.05)	6.6	6.6	1.2	1.0	1.9	0.9	7.2	6.9
SEm±	2.3	2.3	0.4	0.3	0.7	0.3	3.5	2.4

I = First season (Nov 1989 to April 1990)
II = Second season (April 1990 to Sept 1990)

Table 3. Spike and vase characters of gladiolus as influenced by season and variety

Variety	Spike length, cm		No. of florets		Vase life (days)		No. of florets opened at a time	
	I	II	I	II	I	II	1	II
Agnirekha	55.3	74.8	14.8	14.1	6.7	8.7	3.4	2.8
American Beauty	61.0	54.3	15.6	11.4	7.0	6.0	2.6	2.2
Friendship	62.3	61.1	13.7	11.6	7.1	6.5	3.1	2.6
Mansoer Red	58.0	63.7	15.5	10.8	9.0	7.3	4.8	3.2
True Yellow	49.8	66.5	9.3	8.9	7.4	5.1	2.6	1.9
CD (0.05)	9.4	8.9	2.3	1.9	1.6	1.5	0.6	0.9
SEm±	3.3	3.1	0.8	0.7	0.4	0.5	0.2	0.3

I = First season (Nov 1989 to April 1990)
II = Second season (April 1990 to Sept 1990)

Table 4. Corm and cormel yield of gladiolus as influenced by season and variety

Variety	Corm weight (g)		Corm size (cc)		Cormel weight (g)	
	I	II	I	II	I	II
Agnirekha	23.9	21.3	21.6	15.5	9.7	2.8
American Beauty	55.7	23.4	51.3	19.2	9.3	1.0
Friendship	38.7	22.3	37.7	19.4	6.8	1.9
Mansoer Red	27.6	16.7	26.8	12.3	6.0	3.8
True Yellow	61.4	40.4	59.1	36.8	5.3	2.3
CD (0.05)	20.7		20.4	22.3	2.3	1.5
SEm±	7.2	7.5	7.1	8.7	1.4	1.2

I = First season (Nov 1989 to April 1990)
II = Second season (April 1990 to Sept 1990)

the first season whereas Mansoer Red recorded the minimum during the second season. The effect of seasons was prominent in corm size too, in all the varieties studied. The variety True Yellow recorded the maximum size. In general, corm size was better during the first season.

Influence of the first season was also evident for the weight of cormels. All the varieties performed better, as compared to the first season. Agnirekha produced the maximum weight of cormels during the first season, whereas Mansoer Red was the superior variety (3.8 g) during the second season. American Beauty in the first season (9.3 g) and Agnirekha in the second season (2.8 g) closely followed.

When the effect of seasons was considered irrespective of the varieties, the performance of gladiolus was better during the first season (November planting) with respect to most of the selected characters, than during the second season (April planting). November planting produced more leaf area, took minimum time to come to flower, prolonged blooming period, produced more number of florets per spike and yielded heavy corms and cormels. Winter at Vellanikkara is mild with mild day temperature and cooler nights which is reported to be the best suited for gladiolus cultivation. Mukhopadhyay and Banker (1987) reported that more number of florets was obtained from June, October and November plantings when the weather was mild in Bangalore region.

Among the varieties, with respect to growth, blooming period and the floral characters, American Beauty was found to be superior. It also flowered early and produced spikes with more number of florets. Long vase life was obtained in Mansoer Red, which also recorded the maximum number of florets opened at a time. As regards the duration, Friendship was found to be the short duration variety and Mansoer Red and Agnirekha, the long duration varieties. Corm yield was more in True Yellow whereas weight of cormels was more in Agnirekha and Mansoer Red. In general, the performance of all the varieties was good under Vellanikkara conditions. However, to obtain the best quality blooms, November planting was better than April planting.

ACKNOWLEDGEMENT

The study formed *a* part of the M.Sc. thesis of the senior author submitted to the Kerala Agricultural University, Vellanikkara, Trichur.

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