

Performance Evaluation of some new Cultivars of Gladiolus on the basis of Farmer's Preference and Market Acceptance in Nadia District, West Bengal

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Abstract—Field experiments were conducted to evaluate the performance of thirteen new cultivars of gladiolus according to farmers preference in the flower growing area of Nadia district, West Bengal. The experiment was conducted in Randomized Block Design in 2 X 2 m² plots. Both the floral characters and post harvest characters were considered for analysis, but the farmers preference was given the ultimate importance. The experimental results revealed that among the thirteen varieties five varieties namely Snow princess, Novalox, Plumtrate, Yellow stone and Trader horn were highly accepted by the farmers. Farmers preference mainly depends on the colour of the floret and secondly length of the spike. Among the other cultivars Punjab dawn, Green star, Pink friendship and Peasano were also preferred by the farmers.

Keywords: Gladiolus, New cultivar, Farmers preference

1. INTRODUCTION:

Gladiolus (*Gladiolus spp.*) is an important and popular cut flower grown in every flower growing country. This plant is also known as sward lily and having approximately one hundred and fifty known species (Negi *et. al.*, 1982). Due to its attractive colour and shape this flower has become an integral part of any flower arrangement. It plays a vital role in the flower industry. The long flower spikes with excellent colours have been increasing its demand in domestic and international markets day by day. But the demand of the flower depends on several characters like spike length, number of florets in the spike, colour of the florets etc. Different varieties of gladiolus fetch different prices in the flower market depending on these characters.

Several authors also mentioned that the performance of different cultivars was not same in the field condition. Rao and Janakiram (1991) recommended 82-7-2, 82-11-90 and 82-18-109 cultivars for commercial cultivation, where as Safiullah and Ahmad (2000) recommended Nova lux, Rose delight, Deciso, Trader horn and Mary housley for cultivation.

As farmers grow crops considering the market demand, their preference pattern have a serious concern on varietal selection. They can be considered as best judge in this respect.

In this context a field experiment was conducted to evaluate the performance of some new cultivars of gladiolus according to farmers preference in the flower growing area of Nadia district, West Bengal.

2. MATERIALS AND METHODS:

The experiment was carried out in the farmers field of Puratan chapra village, block : Ranaghat II, District: Nadia, West Bengal in the *rabi* season of the year 2013. Thirteen new cultivars were introduced in the area and the farmers preference and market acceptance was assessed. The experiment was conducted in Randomized Block Design in 2 X 2 m² plots. The blubs were planted in the first fortnight of November. The field was prepared with three ploughing and fertilizer applied at the rate of 15 q FYM, 75 Kg N, 195 Kg P₂O₅ and 195 Kg K₂O per hectare as basal. No top dressing of fertilizer has been done. Irrigation and intercultural operation performed as and when required. Spikes were harvested at opening of first floret. Data recorded on length of spike, number of floret per spike, diameter of second floret, basal width of the spike, number of floret open at a time, vass life, average weight of corm and average weight of corm let. All the parameters were also assessed by the farmers as per their preference as well as market acceptance. The ranking of the parameter was as follows:

***	-	Highly accepted
**	-	Accepted
*	-	Not accepted

At the same time the overall performance of a cultivar was ranked in the same three categories by the farmers.

3. RESULT AND DISCUSSION:

The experiment result depicted in Table 1. revealed that the spike length was highest in the cultivar Pusa subham (85.46 cm). This cultivar produced significantly longer spikes than rest of the cultivars. Spike length of Trader horn (73.88 cm) and Peasano (71.24 cm) was also quite high and they were at par among themselves. Yellow stone (69.56 cm), Snow princess (68.24 cm), Pusa kiran (67.53 cm), Dhanwantari (65.28 cm), Pink friendship (62.63 cm), Plumtrate (61.83 cm) and Green star (60.28 cm) also produced spike length of more than 60 cm. But performance of Punjab dawn (56.09 cm), Novalox (55.18cm) and Flaved lagna (42.9 cm) was statistically inferior than rest of the varieties in respect of spike length. Whereas Snow princess produced highest number of floret per spike (17.49), which was statistically higher than all other cultivars. Pink friendship (16.17), Dhanwantari (15.99) and Pusa subham (15.49) also produced large number of floret per spike and this three cultivars were statistically homogenous among themselves in this respect. Trader horn (14.83), Pusa kiran (14.67), Peasano (14.49) and Yellow stone (14.17) also produced more than fourteen florets per spike. But performance of rest of the cultivars was not promising in this respect and Green star (11.66) produced lowest number of floret per spike which was at par with Plumtrate (11.83) and Punjab dawn (11.99). There was no significant variation among the cultivars in respect of number of spike per corm. The size of floret was highest in Pink friendship (11.32 cm), in this cultivar the floret size was significantly higher than all other cultivars. Pusa kiran (10.11 cm), Peasano (10.0 cm), Trader horn (9.9 cm) and Snow princess (9.87 cm) also produced large size florets and these cultivars were homogeneous in respect of this floral character. All most all the cultivars produced standard size floret except Green star (7.28 cm) and Flaved lagna (6.08 cm). Floret sizes of these two cultivars were significantly smaller than all other cultivars. Basal width was highest in the cultivar Peasano (0.89 cm) followed by Snow princess (0.88 cm), Trader horn (0.87 cm), Yellow stone (0.86 cm) and Pusa kiran (0.84 cm) though all the varieties were at par among themselves. Lowest basal width of spike was produced by cultivar Flaved lagna (0.57 cm) which was significantly lower than all other cultivars. In case of cultivar Snow princess highest numbers of florets were open at a time (6.0) which was at par with Punjab dawn and Green star (5.5). In most of the cultivars four or more than four florets were open at a time except Pusa shubham (3.5) and Dhanwantari (3.0). But there was no significant difference among the cultivars in respect of vass life and it ranges from 4-5 days (Table 2). Whereas Trader horn (30.4 g) produced highest weight of corm, which were significantly higher than all other cultivar. Though corm weight in all the cultivar was quite higher and it was more than 18 g. Corm weight obtained from Novalox (25.99 g), Pink friendship (25.97 g), Punjab dawn (25.95 g), Pusa kiran (25.91 g), Yellow stone (24.31 g), Green star (22.8 g),

Peasano (22.6 g) and Snow princess (22.58 g) was also quite high and these cultivar were at par among themselves in respect of corm weight. Lowest corm weight produced by cultivar Flaved lagna (18.24 g). But in case of corm let weight Pusa kiran (0.77 g) was in highest position followed by Plumtrate (0.58 g) and there was no significant difference among the two cultivars. Lowest corm weight was produced by cultivar Flaved lagna (0.21g).

Table 1: Floral characteristics of Gladiolus cultivars.

Varieties	Length of spike (cm)	Number of floret/ spike	Number of spike /corm	diameter of second floret (cm)	Basal width of the spike (cm)
Snow princess	68.24	17.49	2.49	9.87	0.88
Pusa kiran	67.53	14.67	2.49	10.11	0.84
Pusa shubham	85.46	15.49	2.83	9.59	0.73
Punjab dawn	56.09	11.99	3.17	9.12	0.81
Novalox	55.18	13.33	2.49	9.65	0.74
Plumtrate	61.83	11.83	1.83	9.65	0.82
Yellow stone	69.56	14.17	2.33	9.45	0.86
Dhanwantari	65.28	15.99	1.49	9.4	0.73
Green star	60.28	11.66	1.33	7.28	0.69
Pink friendship	62.63	16.17	1.49	11.32	0.74
Flaved lagna	42.9	13.33	1.17	6.08	0.57
Peasano	71.24	14.49	2.49	10.0	0.89
Trader horn	73.88	14.83	1.49	9.9	0.87
SEm±	1.207	0.249	-	0.122	0.017
CD 5%	3.721	0.768	-	0.376	0.053

Table 2: Post harvest characteristics of Gladiolus cultivars.

Varieties	Number of floret open at a time	Vass life (Days)	Average weight of Corm (g)	Average weight of corm let (g)
Snow princess	6.0	5	22.58	0.47
Pusa kiran	4.0	5	25.91	0.77
Pusa shubham	3.5	4	19.41	0.49
Punjab dawn	5.5	5	25.95	0.29
Novalox	5	4	25.99	0.51
Plumtrate	4	4	18.25	0.58
Yellow stone	4.5	5	24.31	0.31
Dhanwantari	3	4	20.02	0.5
Green star	5.5	5	22.8	0.39
Pink friendship	5	4	25.97	0.52
Flaved lagna	5	4	18.24	0.21
Peasano	4.5	5	22.60	0.39
Trader horn	5	5	30.4	0.34
SEm±	0.299	-	1.203	0.061
CD 5%	0.923	-	3.706	0.187

But when the performance of different cultivars was assessed by the farmers a different scenario evolved out. In the opinion of the farmer the most important character of a cultivar was the colour of the floret. Apart from colour length of spike, number of floret / spike, number of spike / corm, size of floret and basal width of floret were also important parameters.

Table 3: Farmers' assessment regarding Gladiolus cultivars.

Varieties	Colour	Length of spike (cm)	Number of floret/spike	Number of spike /corm	diameter of second floret (cm)	Basal width of the spike (cm)	Overall gradation
Snow princess	***	68.24	17.49	2.49	9.87	0.88	***
Pusa kiran	*	67.53	14.67	2.49	10.11	0.84	*
Pusa shubham	*	85.46	15.49	2.83	9.59	0.73	*
Punjab dawn	**	56.09	11.99	3.17	9.12	0.81	**
Novalox	***	55.18	13.33	2.49	9.65	0.74	***
Plumtrate	***	61.83	11.83	1.83	9.65	0.82	***
Yellow stone	***	69.56	14.17	2.33	9.45	0.86	***
Dhanwan tari	*	65.28	15.99	1.49	9.4	0.73	*
Green star	**	60.28	11.66	1.33	7.28	0.69	**
Pink friendship	**	62.63	16.17	1.49	11.32	0.74	**
Flaved lagna	*	42.9	13.33	1.17	6.08	0.57	*
Peasano	**	71.24	14.49	2.49	10.0	0.89	**
Trader horn	***	73.88	14.83	1.49	9.9	0.87	***

Colour of five cultivars were highly accepted by the farmers namely Snow princess (White), Novalox (yellow), Plumtrate (Purple), Yellow stone (Yellow) and Trader horn (deep peach). Other white based varieties like Pusa kiran and Pusa shubham was rejected by the farmers as there was tinge of other colours.

In respect of colour some other cultivar were also accepted by the farmers like Punjab dawn (pink based multicolour), green star (orange yellow multicolour), pink friendship (pink) and Peasomo (pink based multicolour). As per the opinion of the farmers the colour of a gladiolus cultivar should be bright and uncommon, if it is multicolour the combination of the colours should be attractive. Apart from that milky white colour was

always preferred. Spike length of all the cultivars were accepted or highly accepted except Flaved lagna, because spike length of this cultivar is too short. In all the cultivars number of floret / spike was accepted by the farmers. Flower size was also accepted in all the cultivar except Green star and Flaved lagna, because flower size was too small in these two cultivars. Basal width of a spike was not a very important parameter for the farmers, but if the spike was too much lanky that was not accepted by the farmers, and this opinion reflected in case of cultivars Pusa shubham and Flaved lagna. From the experiment it was clear the overall gradation of the cultivars were similar with the gradation based on colour. As per farmers opinion gladiolus is cultivated based on the colour, if other characters are not too much inferior. This phenomenon can be established by the fact that cultivars namely Pusa kiran, Pusa shubham and Dhanwantari failed to achieve the acceptance of the farmers though all most all the parameters were individually in acceptance level. Parameters like vass life, number of floret open at a time, average weight of corm and average weight of corm let are of no importance among the farmers because the traders also do not observe these characters very carefully.

4. CONCLUSION :

From the present experiment it may be concluded that the colour of floret of the gladiolus cultivars are most important parameter for the farmers' acceptance. So before introduction of new cultivars in an area the colours of the cultivars should be properly selected by pre screening by the farmers. It may also concluded that for further study preferred colour of the farmers may be considered as constant, varying the cultivation under scrutiny.

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