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Effects of Corm Size and Planting Date on Flower and Corm Production of Gladiolus in Sylhet Region

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Authors' contributions

This work was carried out in collaboration between all authors. Authors SF and JF designed the study and performed the statistical analysis. Authors MSI and DDN wrote the protocol and first draft of the manuscript. Author MIH managed the literature searches and analyses of the study. All authors read and approved the final manuscript.

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ABSTRACT

A field study was conducted to investigate the effects of corm size and planting date on flower, corm and cormel production of gladiolus (*Gladiolus grandiflorus.* A.) in sylhet. In this investigation three corm sizes *viz.,* large (25$\pm$2 g), medium (15$\pm$2 g) and small (10$\pm$2 g) and two planting dates of 25 October and 25 November were included as treatments. The experiment was laid out in Randomized Complete Block Design (RCBD) with three replications. Results indicated that growth and yield of flower, corm and cormel production were largely affected by corm size and planting dates. Large corm with 25 October planting produced the tallest plant and higher number of leaves compared to the 25 November with medium and small corm. Large corm produced maximum flower, corm and cormels. In case of planting dates, 25 October planting required maximum days for spike to flower initiation (15.02), maximum rachis length (34.09 cm), highest number of floret spike^{-1} (9.77), maximum number of spike (907.16) decimal^{-1}, maximum number of cormels (6271.43) decimal^{-1}. On the other hand, maximum weight of single spike (53.29 g), maximum number of corm (1.65), maximum number of cormels (1117.09) decimal^{-1} was obtained from planting dates of 25 November. It was further noticed that interaction effect of corm size and

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planting dates were significant effects on rachis length (39 cm), floret length (10.25 cm), number of corm plant^{-1} (2.03), number of corm decimal^{-1} (1371.99) and weight of spike plant^{-1} (73.75 g) on 25 November planting with large corm. On the other hand, 25 October planting with large corm was significant in case of number of flower spikes plant^{-1} (1.77), number of flower spikes decimal^{-1} (1192.06), number of cormels plant^{-1} (10.67), number of cormels decimal^{-1} (7197.33), weight of corm (58 g) and weight of cormels (17.4 g) plant^{-1} and weight of corm (39.14 kg) and cormels (11.74 kg) decimal^{-1}. Poor performances in respect of flower, corm and cormel production were observed in the plants grown from small corm and planted on 25 November.

Keywords: Gladiolus; corm size; planting date; spike; corm and cormel production.

1. INTRODUCTION

Gladiolus (*Gladiolus grandiflorus* A.) is an important cut flower in the flower industry. It belongs to the family Iridaceae and is an herbaceous perennial. In Bangladesh gladiolus was introduced from India around the year 1992 [1]. The commercial cultivation of this flower has been extended widely in Jessore, Satkhira, Gazipur, Comilla and Savar region in Bangladesh. Gladiolus occupies fourth place in international cut flower trade [2]. It is frequently used as cut flower in different social and religious ceremonies [3]. They are widely used as artistic garlands, floral ornaments, bouquets etc. Gladiolus spikes are most popular in flower arrangements and for preparing attractive bouquet [4]. Gladiolus is herbaceous and used as bedding flower or does quite well in pots [5]. It gained popularity in many parts of the world due to its unsurpassed beauty and economic value.

Research work on production technology of gladiolus is still at the initial stage in Sylhet region. The topography of Sylhet region is occupied by high and medium land having acidic soil pH ranging from 4.8 to 5.4 containing more iron. Gladiolus grows best in a slightly acidic soil of pH 5.5 to 6.5 where most of the nutrients become available to the plants. To cultivate gladiolus successfully and profitably, need reclamation of soil with liming (calcium carbonate) in Sylhet region. Production of gladiolus is influenced by several factors such as variety, size of corm and cormels, depth of planting, planting dates, application of fertilizer etc [6] of which corm size and planting dates are important. The diameter and weight of corm greatly influence yield and quality of cut flower in gladiolus. Date of planting plays an important role in regulating growth and quality of gladiolus [7]. Vegetative growth and quality of gladiolus is improved by proper planting times which also satisfies the consumer's demands [8]. Planting schedule vary because of differences in photoperiods, temperatures and light intensity. [9]. mentioned that better size gladiolus corms were obtained from February and March plantings. Maximum spikes plant^{-1} were obtained from April to May plantings while highest number of corms plant^{-1} in tuberose was obtained from March and April plantings [10].

It is expected that the information gathered from the result of present experiment would help the growers of Bangladesh as well as Sylhet region to have a better understanding of scientific production of gladiolus by matching corm sizes and planting dates. The present research work was planned to investigate the best planting date on gladiolus production, to determine the optimum size of corm for quality flower, corm and cormel production under agro-ecological conditions of Sylhet, Bangladesh.

2. MATERIALS AND METHODS

The experiment was conducted at the Horticulture Research Field of Sylhet Agricultural University (SAU), Sylhet, during October 2015 to May 2016. The location of the experimental site was in the north-east corner of Bangladesh lying between 23°57' to 25°13' North latitude and 90°56' to 92°21' East longitude. The soil of the experimental field was taken randomly to a depth of 1-15 cm and chemical characteristics were analyzed from Soil Resource and Development Institute (SRDI), Regional Laboratory, Sylhet presented in Table 1. The details about meteorological information of this area during the experimental period were collected from Regional Meteorological Office, Sylhet (Table 2). The planting material of the experiment was a line of gladiolus named GL-20. The corms of this genotype were collected from Floriculture Division, Horticulture Research Centre, Bangladesh Agricultural Research Institute (BARI), Gazipur. The experiment was set up to

Table 1. Chemical characteristics of the experimental field soil (1-15 cm)

Particulars	Value
Soil pH	4.98
Organic matter (%)	1.79
Total N (%)	0.09
Exchangeable K (meq 100 g^{-1} soil)	0.13
Available P(µg g^{-1} soil)	14.98
Available S (µg g^{-1} soil)	27.01

Table 2. Meteorological information on temperature, rainfall and humidity during the period of October 2015 to May 2016 in Sylhet

Year	Month	Average air temperature (ºC)		Total rainfall (mm)	Average relative humidity (%)
		Maximum	Minimum		
2015	October	33	23.4	56.6	69
	November	30.6	19	0	63
	December	26.1	14.7	7.2	67
2016	January	24.6	13.4	10.9	64
	February	29.1	17.6	28.3	48
	March	32	20.5	139.4	58
	April	31	21.6	1030.1	75
	May	31.3	23.2	670.1	74

investigate the effect of planting date and to determine optimum corm size (large, medium and small) on the growth, flower and corm production of gladiolus. The study consisted of two factors. Factor A: Corm size, Large (Average weight 25±2 g), Medium (Average weight 15±2 g) and Small (Average weight 10±2 g). Factor B: Planting Date, 25 October 2015 and 25 November 2015. There were (3 × 2) = 6 treatment combinations such as C_1P_1, C_1P_2, C_2P_1, C_2P_2, C_3P_1 and C_3P_2. The experiment was laid out in a Randomized Complete Block Design (Factorial experiment) with three replications. The treatments were randomly allotted in each block. The unit plot size was 30 cm × 200 cm accommodating 10 plants per plot. Spacing was maintained at 30 cm from row to row and 20 cm from plant to plant. Planting were done at 25 October and 25 November, 2015. The experimental plot was first opened on 1st week of October 2015 with a power tiller for sun curing for 7 days before next plough. The land was then ploughed and cross ploughed several dates using power tiller to obtain a good tilth. Ploughing was followed by laddering for breaking large soil clods and for leveling the land surface. The land was fertilized with cowdung, Urea, TSP and MoP @ 5 t, 150 kg, 225 kg and 190 kg ha^{-1}, respectively. The whole amount of cowdung, TSP and MoP were applied during final land preparation and urea was applied at 15, 30 and 45 days after germination as top dressing. The corms were planted at a depth of 5-6 cm in furrows on 25 October and 25 November 2015. During the experimental period normal cultivation procedures weeding, mulching, Irrigation, earthing up and other intercultural operation were done whenever it necessary. The spikes of gladiolus were harvested from 6 January to 25 February 2016 at the tight bud stage and when 1-2 basal flower buds opened by showing color so that these may easily open in indoors one by one. Corms and cormels were harvested on 2 April 2016 and 2 May 2016 when leaves turned into brown. The data were recorded on individual plant basis from the randomly chosen five plants from each plot on following characters days to spike initiation, days to flower initiation from spike initiation, spike length (cm), rachis length (cm) , number of florets $spike^{-1}$, number of flower spike $plant^{-1}$, weight of single spike (g), number of corm $plant^{-1}$, number of cormel $plant^{-1}$, weight of corm $plant^{-1}$ (g), weight of Cormel $plant^{-1}$ (g), yield of spike $decimal^{-1}$, yield corm $decimal^{-1}$, yield cormel $decimal^{-1}$ etc. The data collected on various parameters were statistically analyzed by using "R" software to find out the statistical significance of the treatment effect and mean values were separated using Least Significant Difference (LSD) test.

3. RESULTS AND DISCUSSION

3.1 Days to Spike Initiation

The number of days required to spike initiation was non-significant due to corm size. The average days required to spike initiation ranged 75.63 to 78.33 days. The effect of planting date on spike initiation was also non-significant. The maximum period (78.73 days) was required by 25 October planting. The lowest duration (75.71 days) required for spike initiation was found in 25 November planting. Interaction effect showed significant variation on days required for spike initiation. It was found that the highest number of days required for spike initiation (83.67 days) was observed in 25 October planting with the large corm and the lowest days to spike initiation (73 days) was found in 25 November with large corm followed by interactions C_3P_1 (75.4 days) and C_3P_2 (75.86 days) which derives from small corm of 25 October and 25 November planting (Table 3).

3.2 Days to Flower Initiation

Days required for flower initiation from spike initiation was non-significant for different corm size. The maximum time (13.92 days) required for flower opening was recorded from small corm while the minimum (13.13 days) was obtained from medium corm. The days needed for flower initiation from spike initiation was significantly influenced by planting date. Results showed that the lower number of days (12.20 days) was required for flower initiation by the plants planted on 25 November and the higher number of days (15.02 days) to flower initiation was found on 25 October planting. The interaction effects of corm size and planting date on the days required for flower initiation from spike initiation was statistically significant. It was found that the maximum days required for spike initiation (16.49 days) was 25 October planting with small corm (C_3P_1) and the minimum days for spike initiation (11.35 days) was 25 October with small corm (C_3P_2) followed by 25 November with medium corm (C_2P_2) (Table 3).

3.3 Spike Length (cm)

The length of spike varied significantly due to the effects of different corm size. The highest spike length (72.39 cm) was obtained from the large sized corm. It was followed by medium sized corm (65.3 cm). On the other hand, the shortest spike (57.83 cm) was produced by small corm. The increased spike length of large corm was probably due to the better vegetative and reproductive growth of the plant. The results were also agreed with the findings of Memon *et al.* who concluded that the increased spike length was due to the use of large corm [11]. The effect of planting date on the spike length was found significant. The planting date of 25 November produced maximum spike length (66.9 cm), while it was minimum (63.56 cm) at 25 October. Similar result was obtained by Ara et al. [12]. Highly significant interaction effect was also found between corm size and planting date in respect of spike length. However, the interaction effect of corm size and planting date revealed that the maximum length of spike (78.92 cm) was produced from large corm with 25 November planting (C_1P_2) while the minimum length of spike (57.39 cm) was obtained from small corm planted at 25 October (C_3P_1) followed by treatment interaction (C_3P_2) of small corm planted in 25 November planting (58.27 cm) (Table 3).

3.4 Rachis Length (cm)

Rachis length at harvest showed statistically significant difference due to effects of different corm size. The highest length of rachis at harvest (37.73 cm) was recorded in large size corm which was closely followed by medium size corm (31.87 cm). On the other hand, lowest length of rachis (30.28 cm) was recorded for small size corm. The increased rachis length from large corm was probably due to the presence of higher food materials in the large corm which resulted in better vegetative and reproductive growth of the plant. Mollah et al. found maximum rachis length in larger corms [13]. The rachis length was significantly influenced by planting date. The higher rachis length (34.09 cm) was obtained from 25 October planting. On the other hand, the lower rachis length (32.5 cm) was recorded in 25 November planting. This result was more or less similar to the finding of Bankar and Mukhopadhyay [14]. Interaction effects showed significant variation on rachis length. At harvest, the maximum length of rachis (39 cm) was recorded from large size corm planted in 25 October (C_1P_2) while the minimum (28.17 cm) was recorded from treatment interaction (C_3P_2) small corm in 25 November (Table 3).

3.5 Number of Floret Spike^{-1}

The floret number spike^{-1} is an important parameter of gladiolus. There was significant difference on the number of florets spike^{-1} observed due to different size of corm used. The number of florets spike^{-1} was increased with the increase in corm size. Plants from large corm produced the highest number of florets (9.94). On the other hand, plant grown from small corm produced the lowest number of florets (8.66). It was concluded that the large sized corms performed better and produced maximum number of florets spike^{-1} which might be due to availability of more photosynthates. These results are in conformity with the results of Singh and Singh et al. who also observed that larger corms produced more florets in gladiolus [15, 16]. There was significant variation due to the effects of planting date in respect of number of florets spike^{-1}. The maximum number of florets spike^{-1} (9.77) was obtained from the planting date of 25 October and the minimum (8.97) was under the 25 November. Similar result was found by Ara et al. [12]. Interaction effect of corm size and planting date revealed that the maximum number of florets was obtained from the treatment interaction of large corm with 25 October (C_1P_1). On the other hand, the treatment interaction C_3P_2 produced minimum number of florets (8.32) per spike (Table 3).

3.6 Number of Flower Spike Plant^{-1}

Significant variation was observed due to different corm size on number of spike plant^{-1} in gladiolus. The highest number of spike plant^{-1} (1.67) was found from large corm and the lowest (0.92) was recorded from small corm. Planting date caused significant variation in number of spikes plant^{-1} in gladiolus. The higher number of spikes plant^{-1} (1.34) was obtained from 25 October planting while the lower (1.26) was recorded from 25 November planting. Interaction effect showed significant differences on number of spike plant^{-1} of gladiolus. The highest number of spike plant^{-1} (1.7) was recorded from large corm planted in 25 October (C_1P_1) while the lowest (0.8) was obtained from small corm planted in 25 November (C_3P_2) (Table 3).

3.7 Number of Corm Plant^{-1}

The corm size had significant effect on the number of corm plant^{-1}. The large size corm produced maximum number of corm plant^{-1} (1.8) while the small corm produced minimum number of corm plant^{-1} (1.3). These results are in accordance with the results of Memon et al. in gladiolus [11]. He reported more corm and cormel produced from large size corms than other corm size. There was significant variation in number of corms plant^{-1} at harvest due to the effect of planting date. The maximum number of corms plant^{-1} (1.65) was obtained from the planting date of 25 November. But the minimum number of corms plant^{-1} (1.32) was found in 25 October. Similar result was found by Begum [17]. The interaction effect of corm size and planting date in respect of number of corms plant^{-1} was statistically significant. The maximum number of corms plant^{-1} (2.03) was produced by the planting date of 25 November with large corm (C_1P_2) while the minimum (1.26) was recorded in treatment interaction (C_3P_2) which is similar (1.33) in treatment interaction (C_3P_1) (Table 3).

3.8 Number of Cormels Plant^{-1}

There was significant difference on the number of cormels plant^{-1} due to different sizes of corm used. The number of cormels plant^{-1} was increased with the increase in corm size. Plants from large corm produced the highest number of cormels (9.77). On the other hand, plant grown from small corm produced the lowest number of cormels (7.3). The present results are in accordance with the findings of Gowda who obtained the higher number of cormel in plants grown from large corm [18]. There was significant variation in number of cormels plant^{-1} at harvest due to the effect of planting date. The maximum number of cormels plant^{-1} (9.29) was obtained from the planting date of 25 October. But the minimum number of cormels plant^{-1} (7.91) was found at 25 November. The interaction effect of corm size and planting date on the number of cormels plant^{-1} was found significant. However, the interaction effects of corm size and planting date revealed that the maximum number of cormels (10.67) was obtained from the treatment interaction of large corm planted at 25 October (C_1P_1). On the other hand, minimum number of cormels (6.133) plant^{-1} found in small corm with 25 November (C_3P_2) planting (Table 3).

3.9 Weight of Single Spike (G)

Spike weight was significantly influenced by corm size. Large corm showed maximum weight (62.33 g) of spike and medium corm showed optimum weight (49.55 g) of spike while small sized corm gave minimum weight (37.56 g) of spike. Large sized corm and medium sized corm produced healthy spike which was the ultimate result of higher weight of single spike. The present results are in agreement with the findings of Ko et al. [19]. Significant variation was observed in weight of single spike due to different planting date. The higher weight of single spike (53.29 g) was recorded in 25 November. The lower weight of single spike (47.33 g) was recorded in 25 October planting. Interaction between corm sizes and planting date

Table 3. Effects of corm size and planting date on yield contributing characteristics of gladiolus

	Days to spike initiation	Days to flower initiation	Spike length (cm)	Rachis length (cm)	No of florets spike^{-1}	No. of flower spike plant^{-1}	No. of corm plant^{-1}	No. of cormel plant^{-1}
Corm size								
C_1	78.33	13.78	72.39 a	37.73 a	9.94 a	1.67 a	1.8 a	9.77 a
C_2	77.00	13.13	65.3 b	31.87 b	9.5 b	1.32 b	1.37 b	8.74 b
C_3	75.63	13.92	57.83 c	30.28 c	8.66 c	0.92 c	1.3 b	7.3 c
Planting dates								
P_1	78.73	15.02 a	63.56 b	34.09 a	9.77 a	1.34 a	1.32 b	9.29 a
P_2	75.71	12.20 b	66.9 a	32.5 b	8.97 b	1.26 b	1.65 a	7.91 b
Interactions								
C_1P_1	83.67 a	14.3 b	67.87 b	36.47 b	10.47a	1.77 a	1.57 b	10.67 a
C_1P_2	73 b	13.25 bc	78.92 a	39 a	9.42b	1.57 b	2.03 a	8.87 b
C_2P_1	77.13 ab	14.27 b	64.53 b	33.4 c	9.83b	1.23 d	1.07 d	8.75 b
C_2P_2	78.27 ab	12 c	66.07 b	30.33 d	9.16c	1.4 c	1.67 b	8.73 b
C_3P_1	75.4 b	16.49 a	58.27 c	32.4 c	9.0 c	1.03 e	1.33 c	8.47 b
C_3P_2	75.86 b	11.35 c	57.39 c	28.17 e	8.32d	0.8 f	1.26 c	6.13 c
CV (%)	5.04	8.75	3.09	2.75	2.6	3.51	4.15	4.09

In a column same letter (s) do not differ significantly at P<0.05 by LSD

Here,

C_1= Large corm (Average weight 25±2 g)
C_2= Medium corm (Average weight 15±2 g)
C_3= Small corm (Average weight 10±2 g)

P_1=25 October Planting
P_2=25 November planting

for weight of single spike was found significant. The highest weight of single spike (73.75 g) was recorded in large size corm with 25 November planting (C_1P_2), while the lowest weight (32.11 g) was recorded in small size corm with 25 November (C_3P_2) (Table 4).

3.10 Weight of Corm Plant^{-1} (g)

Weight of corm per plant was significantly influenced by corm size. Large corm showed maximum weight of corm (53.1 g) plant^{-1} while small sized corm gave minimum weight of corm (34.88 g) plant^{-1}. Similar results were also reported by Bhat et al. [20]. The weight of corms plant^{-1} recorded after harvest was significantly influenced by planting date. The higher weight of corms plant^{-1} (49.1 g) was obtained from the planting date of 25 October and the lower weight of corms (42.02 g) was recorded in 25 November. Hong et al. also reported that the weight of new corm production decreased with delay in planting [21]. Interaction effect was significant between corm size and planting date regarding the weight of corm plant^{-1}. The maximum weight of corm plant^{-1} (58 g) was obtained by the planting dates of 25 October with large corm (C_1P_1), while minimum weight (34.83) was recorded in 25 November with small corm (C_3P_1) (Table 4).

3.11 Weight of Cormels Plant^{-1} (g)

Significant variation was observed on weight of cormels plant^{-1} of gladiolus for different size of corm. The weight was highest (17.25 g) in plants grown from large corms whereas it was the lowest (8.38 g) when small corms were used as planting material. Similar results were also reported by Bhat et al. [20]. The weight of cormels plant^{-1} recorded after harvest was significantly influenced by planting date. The higher weight of cormels plant^{-1} (12.44 g) was obtained from the planting date of 25 October and the lower weight of cormels (11.64 g) was recorded in 25 November. The interaction effects of corm size and planting date was found significant in respect of cormels weight plant^{-1}.

The maximum weight of cormels plant^{-1} (17.4 g) was given by the planting date of 25 October with large corm (C_1P_1), while minimum weight (7.03 g) was recorded in 25 November with small corm (C_3P_2) (Table 4).

3.12 Yield of Spike (Number Decimal^{-1})

Statistically significant variation was observed due to different corm size on number of spikes decimal^{-1} in gladiolus. The highest number of spikes decimal^{-1} (1124.58) was found from large corm and the lowest (618.52) was recorded from small corm. There was significant variation due to the effect of planting date in respect of number of spikes decimal^{-1}. The maximum number of spikes decimal^{-1} (907.16) was found with the planting date of 25 October, whereas the minimum (847.19) was recorded from 25 November. Interaction effect showed significant differences on number of spikes decimal^{-1} of gladiolus. The highest number of spikes decimal^{-1} (1192.06) was recorded from large corm planted in 25 October (C_1P_1), while the lowest (539.8) was obtained from small corm planted in 25 November (C_3P_2) (Table 4).

3.13 Corm Yield Decimal^{-1} (Kg)

Significant variation was recorded in terms of corm yield decimal^{-1} for different corm size. The highest corm yield (35.8 kg decimal^{-1}) was recorded from large corm while the lowest (23.54 kg/decimal) was recorded from small corm. Similar findings were also reported by Bhat et al. [20]. There was significant variation due to the effect of planting date on corm yield. The maximum yield of corm (33.27 kg decimal^{-1}) was recorded from 25 October planting, while the minimum yield of corm (28.35 kg decimal^{-1}) was obtained from 25 November. The interaction effect of corm size and planting date in respect of number of corm decimal^{-1} was statistically found significant. The maximum yield of corm decimal^{-1} (39.14 kg) was produced by the planting date of 25 October with large corm (C_3P_2), while the minimum (23.5 kg) was recorded in 25 October with small corm (C_3P_1) (Table 4).

3.14 Yield of Cormel Decimal^{-1} (Kg)

Significant variation was recorded for different corm size on cormel yield decimal^{-1}. The highest cormel yield (11.64 kg decimal^{-1}) was recorded from large size corm while the lowest (5.66 kg decimal^{-1}) was recorded from small size corm. The weight of cormels decimal^{-1} recorded after harvest was significantly influenced by planting date. The higher weight of cormels decimal^{-1} (8.4 kg) was obtained from the planting date of 25 October and the lower weight of cormels (7.86 kg decimal^{-1}) was recorded in 25 November. Mukhopadhyay had the same findings [22]. The interaction effects of corm size and planting date in respect of yield of cormels was found significant. The highest yield of cormels decimal^{-1} (11.74 kg) was found with the planting date of 25 October with large corm (C_1P_1), while it was the minimum (4.75 kg) in case of planting date of 25 November with small corm (C_3P_2) (Table 4).

Table 4. Effects of corm size and planting date on spike, corm and cormel production in gladiolus

	Weight of single spike (g)	Weight of corm plant^{-1} (g)	Weight of cormels plant^{-1} (g)	Yield of spikes (no. decimal^{-1})	Yield of corm decimal^{-1} (Kg)	Yield of cormel decimal^{-1} (kg)
Corm size						
C_1	62.33 a	53.1 a	17.25 a	1124.58 a	35.83 a	11.64 a
C_2	49.55 b	49.02 b	10.50 b	888.42 b	33.08 b	7.08 b
C_3	37.56 c	34.88 c	8.38 c	618.52 c	23.54c	5.66 c
Planting dates						
P_1	46.33 b	49.31 a	12.44 a	907.16 a	33.27 a	8.40 a
P_2	53.29 a	42.02 b	11.64 b	847.19 b	28.35 b	7.86 b
Interactions						
C_1P_1	50.9 bc	58 a	17.4 a	1192.06 a	39.14 a	11.74 a
C_1P_2	73.75 a	48.19 c	17.1 a	1057.11 b	32.52 c	11.54 a

	Weight of single spike (g)	Weight of corm plant^{-1} (g)	Weight of cormels plant^{-1} (g)	Yield of spikes (no. decimal^{-1})	Yield of corm decimal^{-1} (Kg)	Yield of cormel decimal^{-1} (kg)
C_2P_1	45.1 cd	55.1 b	10.2 bc	832.19 d	37.18 b	6.88 bc
C_2P_2	54 b	42.93 d	10.8 b	944.65 c	28.97 d	7.29 b
C_3P_1	43 d	34.83 e	9.73 c	697.24 e	23.58 e	5.67 c
C_3P_2	32.11 e	34.94 e	7.03 d	539.8 f	23.50 e	4.75 d
CV (%)	6.5	3.25	3.19	3.51	3.25	3.19

In a column same letter (s) do not differ significantly at P<0.05 by LSD

Here,

C_1= Large corm (Average weight 25±2 g) *P_1=25 October Planting*
C_2= Medium corm (Average weight 15±2 g) *P_2=25 November planting*
C_3= Small corm (Average weight 10±2 g)

4. CONCLUSION

Growth and yield of gladiolus was largely affected by corm size. Large sized corm was better for flower, corm and cormel production of gladiolus followed by medium sized corm. The results of the present study revealed that 25 October planting was better for quality flower, corm and cormel production of gladiolus than that of 25 November planting. For more conformation of the results and precise recommendation, further study with more number of genotypes along with several planting dates needed. Considering the results of the present experiment, further studies might be conducted in different Agro-Ecological Zones (AEZ) including different area of Sylhet for regional adaptability and other precise conclusion.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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