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Enfluence of GA₃ and spacing on spike per plant of gladiolus (*Gladiolus grandifloras* L.)

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Abstract

Experiment was laid out in RBD with three replications. The results of the experiment showed use of Gibberellic acid and spacing's had been significantly. Highly influence on the most parameters such as number of spike per plant was significant on higher amount of Gibberellic acid and wider spacing's.

Keywords: gladiolus, GA₃, spacing & spikes

Introduction

Gladiolus is a popular flowering plant grown all over the world, from South Africa to West Asia. The name gladiolus was derived from the Latin word gladioli, because of its sword-like leaves. It is popularly known as sword lily. It was introduced for the cultivation at the end of the 16th century (Parthasarathy and Nagaraju, 1999) [7]. The modern hybrids is botanically known as *Gladiolus grandifloras* belonging to family Iridaceae. In the international cut-flower trade gladiolus occupies fourth place. It is mainly cultivated for cut-flowers because of its elegant appearance and prolonged vase life. As a cut flower, it has great potentialities for the export to European countries during the winter months to even the valuable foreign exchange. Therefore, growing gladiolus on scientific footing is of immense needs for getting the quality blooms with exportable standards. Gladiolus spikes are most popular in flower arrangements and for preparing attractive bouquets (Mishra *et al.* 2006). The spacing depends on the purpose for which the crop is grown. For commercial cultivation, high-density planting is recommended. The corm number, corm weight and cormel production per corm decreased in closer spacing's. However, even the closest spacing produced corms of top grade (Arora, 1987) [1]. Flower quality (Length of cut flower, length of spike and number of florets) was poor in higher density plots (Huh rut *et al.*, 1996) [3]. The potential use of growth regulators in flowers production has created considerable scientific interest the recent years. Many studies have indicated that the application of growth regulators can affect the growth and development of gladiolus (Chopde *et al.*, 2011) [2].

Materials and Methods

The plan of the experiment is given in number technical programme are as under variety - Snow princess, design - RBD with factorial concept, number of treatment combination 09, GA₃ - 50ppm, 100ppm, 150pp, spacing-30 x15,30x20 & 30x25cm (RxP) and distance between replication - 0.75m etc.

Results

In this result embodies an elaborate account of various studies made during the period of investigation on the experimental crops of gladiolus (*Gladiolus grandifloras* L.) Cv. Snow Princess.

Number of spike per plant

Data collected on account of number of spike per plant of gladiolus as affected by different doses of gibberellic acid and spacing have been portrayed in graphically represented in fig. No. 01 & 02. It is observed from the data referred in above table indicated that received the application GA₃ @ 150ppm brought paramount improvement in number of spikes per plant and maximum spikes per plant (1.37) spikes/plant were found which was significantly superior over rest of the treatment. A higher number of spikes were noticed when higher doses of GA₃ were word. Use of spacing also caused beneficial response on number of spikes of gladiolus

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and maximum number of spikes per plant i.e. 1.49 was obtained when wider spacing (30 x 25cm) was used followed by 30 x 20cm.

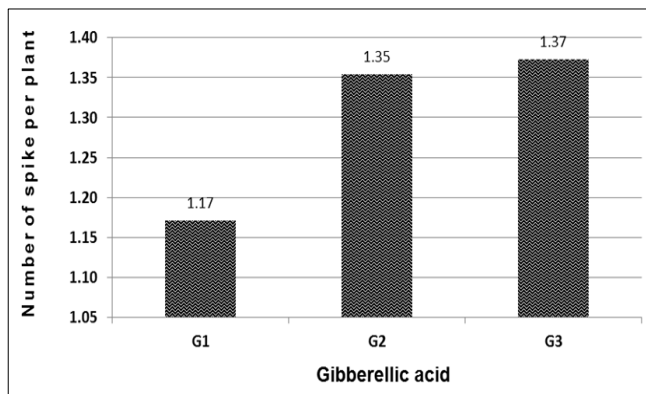


Fig 1: Number of spike per plant of Gladiolus as influenced by different doses of gibberellic acid

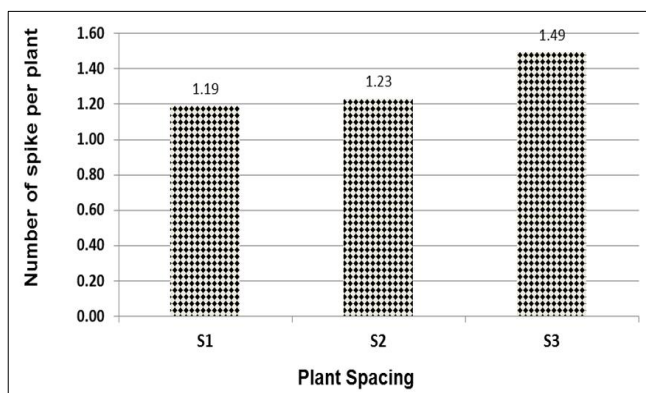


Fig 2: Number of spike per plant of Gladiolus as influenced by different plant spacing

Discussion

Evaluation of different biological parameters of gladiolus cultivators was made during Rabi season of 2015-2016 with the object to see the most suitable, high quality for cultivation in Satna region of M.P. Study of various parameters is essential for such evaluation. Among them the most important ones are number of spike per plant. A cultivar possessing the desirable characters as mentioned above would be considered good cultivars even though it lacks one or more other characters. The merits and demerit of one cultivars are dis-abuse based on the different parameter studied. Hona and Goo (1991)^[4] under Korean conditions found that number of spike was earlier in Snow princess produced in Korean then in imported number of spike. This trend may be attributed to varietal growth characters; it may differ in particulars variety according to temperature and season. Other growth parameters viz., number of spikes, showed highly significant differences, among the cultivars as for as number of spike per plant was concerned this cultivars was maximum number of spike (30 and 60 days) on GA₃ @ 150ppm and the spacing on maximum number of spike per plant was recorded i.e. 5.46, 7.80 (30 and 60 days) respectively. This trend may be attributes to the varietal growth of characters are almost different. The parameters of further responsible for best spike. More number of leaves per plant resulted in increased spike per plant. The cultivars, spike is very important, it decide the number spike. When become more the spike also become longer which are important characters of gladiolus. The

cultivars had shown highly significant differences for the time taken for number of spikes. Hong and God (1991)^[4] under vindhya region conditions and found that spikes emerged sooner was earlier in gladiolus produced in maximum that the improved spike. This variation may be attributes to the different temperatures and seasonal conditions prevailing at different places in the particular area cultivars have maintained the difference, noticed in the number of spikes. The cultivars under study had shown highly significant differences with respect to number of spike. The range for number of spike was obtained i.e. 88.13 to 102.28.respectively. The cultivars for spacing 30 x 25cm with a range of 88.92 to 111.21cm, and Minimum number of spike was observed i.e. 88 (cm) on GA₃. It is a desirable character for cut flower because large spike.

Summary and Conclusion

The experiment was laid out in Factorial Randomized Block Design with three replications and treatments viz., (T₁) S₁G₁ = 30 x 15cm + GA₃ 50ppm, (T₂) S₁G₁ = 30 x 15cm + GA₃ 100ppm, (T₃) S₁G₃ = 30 x 15cm + GA₃ 150ppm, (T₄) S₂G₁ = 30 x 20cm + GA₃ 50ppm (T₅) S₂G₂ = 30 x 20cm + GA₃ 100ppm (T₆) S₂G₃ = 30 x 20cm + GA₃ 150ppm, (T₇) S₃G₁ = 30 x 25cm + GA₃ 50ppm, (T₈) S₃G₂ = 30 x 25cm + GA₃ 100ppm and (T₉) S₃G₃ = 30 x 25cm + GA₃ 150ppm etc. The treatments 150ppm GA₃ (G₂) was found significantly superior over the treatments in respects to number of spike per plant. But GA₃ 150ppm was found significantly in increase the gladiolus number of spike. The spacing (30 x 25cm) showed significance in all the positives characters of growth. The reduce number of spike per plant. On the basis of result summarized above the following specific conclusions are being warranted - (1) It may be concluded that foliar feeding of GA₃ @ 150ppm caused beneficial effect on length of spike and higher planting geometry 30 x 25cm was used.

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