

Influence of chemical fertilizers on growth, quality, corm and cormel production of gladiolus (*Gladiolus grandiflorus* L.) cv. SANCERREE under South Gujarat conditions

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ABSTRACT

Field experiment was conducted to study the Influence of chemical fertilizers on growth, quality, corm and cormel production of gladiolus (*Gladiolus grandiflorus* L.) cv. "SANCERREE" at Floriculture Research Scheme, Regional Horticultural Research Station, Navsari Agricultural University, Navsari during *Rabi* season of 2002. The experiment was laid out in Factorial Randomized Block Design with three replications, which included twelve treatment combinations consisting of three levels of nitrogen *i.e.* 200, 250 and 300 kg/ha, two levels of phosphorus *i.e.* 150 and 200 kg/ha and two levels of potash *i.e.* 150 and 200 kg/ha. The gladiolus fertilized with 250 kg N/ha significantly improved the plant height, length of longest leaf, leaf area, fresh and dry weight of leaf, number of florets/spike, spike length, flower diameter, corm diameter, number of corms and cormels per plant. The maximum production of corms (5134.427 kg/ha) and cormels (2933.957 kg/ha) were also recorded under treatment N₂. Among the different levels of phosphorus, treatment receiving 200 kg P₂O₅/ha found superior for almost all the growth parameters, quality characters and yield components except number of leaves per plant, length of longest leaf and number of days required for spike emergence. The results revealed that all the growth parameters, quality characters and yield parameters were remained unaffected due to different dose of potassium.

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The gladiolus (*Gladiolus grandiflorus* L.) belongs to family Iridaceae. Gladiolus flowers are mostly used as cut flowers, loose flowers and making bouquet and garlands. It has wide range of attractive colours like white, salmon yellow, red, pink, violet, greenish and smoky. Among the different management practices in flower crops, nutrient management plays an important role for good growth and flower production. It has been observed that N, P, K and Fe nutrients are limiting factors in successful growing of gladiolus. Thus, the response of gladiolus to the applied nutrients is quite encouraging in terms of flower production. Considering this, the present investigation was taken up to find out all the optimum dose of N, P and K for maximum production of flowers, corms and cormels in gladiolus under south Gujarat conditions.

MATERIALS AND METHODS

A field experiment was conducted at Floriculture Research Scheme, Regional Horticultural Research Station, Navsari Agricultural University, Navsari during *Rabi* season of 2002. The experiment was laid out in Factorial Randomized Block Design with three replications, which included twelve treatment combinations

consisting of three levels of nitrogen *i.e.* 200, 250 and 300 kg/ha, two levels of phosphorus *i.e.* 150 and 200 kg/ha and two levels of potash *i.e.* 150 and 200 kg/ha. Full dose of phosphorus (in the form of single super phosphate) as well as potash (in the form of muriate of potash) and half quantity of nitrogen (in the form urea) was applied as basal. The remaining quantity of nitrogen was applied after one month.

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below :

Effect of nitrogen :

On growth attributes :

The medium level of nitrogen N₂ (250 kg/ha) recorded significantly maximum plant height (113.6 cm). Similarly highest leaf area (110.36 cm²), as well as maximum length of leaf (73.4 cm), fresh weight of leaf (5.332g) and dry weight of leaf (1.497g) were also recorded maximum with the application of nitrogen at 250 kg/ha (Table 1). These increases might be due to better availability of nitrogen nutrient leading to the quick and better vegetative growth of gladiolus plant. As the