



Research Note :

RESPONSE OF SPRAYING OF UREA AND DI-POTASSIUM PHOSPHATE ON FLORAL PARAMETERS AND FLORET PRODUCTION OF GLADIOLUS

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ABSTRACT : The study was laid out with the main objective to find out the effect of urea and KH_2PO_4 applied through foliar spray on floral parameters and floret production of gladiolus cv. Friendship at JCB, Etawah, C.S.J.M. University, Kanpur during two years. Foliar spray of 3% urea and 0.75% KH_2PO_4 applied 60 days after planting give highest length of flower stalk. The spraying of urea and KH_2PO_4 slightly increase the days to 1st flowering opening over the control. The small size of florets was recorded under control by 5.65 cm diameter against the larger obtained by spray of urea 3% to 6.90 cm diameter. As regard, the effect of KH_2PO_4 bigger florets of 6.73 cm was produce by 0.75% concentration in comparison to lower doses of KH_2PO_4 and control. The 3% urea solution increases the number of florets per stalk by 22% and KH_2PO_4 by 15% over the control.

Keyword : Floral parameters, floret production, foliar spray, KH_2PO_4 , urea.

Gladiolus is a familiar flower plants which is grown most of the flower growers for commercial point of view. It is native of tropical South Africa, central Europe. Mediterranean region. In india it is mostly cultivated in Jammu and Kashmir, Himanchal Pradesh, hillocks area of Uttar Pradesh, Kalimpong and Darjeeling of West Bengal, Shilong, Jorhat, Pune, Bangaloroo and Ooty. With the introduction of tropical cultivar suitable for the North Indian plains it is possible to grow it commercially almost all the states of india. Gladiolus is glamorous flower and ideal for floral decoration. No garden is complete without a path of gladiolus. Fertilizer recommendation for the high quality of flower still require special attention to be standardized for different regions. Although erratic work has been carried out on the utility of foliar spray of different plant nutrients but gladiolus has not received due attention which was deserves.

A field trial was conducted at Janata (Post Graduate) College, Bakewar, Etawah (U.P.), C.S.J.M University, Kanpur for two consecutive years in Factorial R.B.D. with three replications. The corms of gladiolus var. Friendship procured from National Botanical Research Institute, Lucknow and tested

under different treatments. Three concentrations each of urea (1%, 2% and 3%) and KH_2PO_4 (0.25%, 0.50% and 0.75%) were sprayed at 45, 60 and 45+60 days after planting (DAP). Fertilizer was prepared carefully and application of N, P and K were applied @ 150:75:75 kg/ha. N was applied through urea and DAP, whereas P_2O_5 through DAP. The calculated amount of K was applied through MOP. Well rotted cow dung manure @ 2.5 t/ha was added and mixed properly. All the corms were treated with 0.5% solution of bavistin. After layout and demarcation of plots corms were planted 30 cm apart between rows and 20 cm apart from corm to corm. All the weeding, irrigation and cultural practices were applied as per recommendations. Length of flower stalk per plant was measured by meter scale. Days to 1st floret opening was recorded. Number of florets per stalk was counted. The diameter of floret of each sampled corm was recorded with the help of Verneer caliper. The pool data of two years was statistically analyzed with standard method as described by Gomez and Gomez (7). The results of study discussed on mean value of two years.

Length of flower stalk

The length of flower stalk significantly increased with spray of urea (Table 1). The minimum value of 83.20 cm in control and maximum of 90.35 in 3% spray in pooled results of two years. Application of 1% urea

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caused 87.08 cm long stalk in pooled results against 83.20 cm under control. Increasing of urea to 2% increased it further, which was significantly superior over 1% concentration but remained at par with 3% concentration. Foliar sprays of KH_2PO_4 also helped in increasing the length of floral stalk significantly in comparison to control but did not proved superior over urea. Lower concentration of 0.25% produced the stalks of 86.57 cm in pooled results of two years. Increasing concentration of 0.50 and 0.75% KH_2PO_4 gave only numerical increase and did not differ significantly from 0.25% concentration. However, all the concentrations proved superior to control in prolonging the length of floral stalk.

Days to first floret opening

The plant under control needed 89.82 days for the opening of first floret on pooled results against 92.86 days under 1% urea sprays. Similarly, application of 2% and 3% urea took 93.04 and 93.46 days, respectively, in pooled results for the opening of first floret. It obviously revealed the fact that enrichment of plant with nitrogen delays the flowering. Application of KH_2PO_4 in 0.25% concentration required 89.29 days in pooled results, which was significantly lesser to nitrogen nutrition but remained at par with control. Higher concentration of 0.50 and 0.75% KH_2PO_4 also did not vary much from its lower concentration and required around 90 days for the same.

Size of floret

The small size of florets were produced by the plants under control by 5.65 cm diameter against the larger obtained by spray of urea 3% measured 6.90 cm in pooled results of two years. Foliar application of 1% urea showed significant increase and did not differ significantly from the higher concentrations of 2% and 3% treatments during pooled results of two years. As regards the effect of KH_2PO_4 bigger florets of 6.73 cm

were produced by 0.75% concentration in comparison of 6.56 cm noted under 0.25% in pooled results. The concentration of 0.50% revealed 6.70 cm floret size which was differ significantly with control but at par to 0.75% dose in pooled results of two years. Thus both urea and KH_2PO_4 without any regard to strength of spray solution produced large florets. Nitrogen, phosphorus and potash application either through soil or spray has also been reported by a most of workers and the present findings are in close agreement with reports of Fodor *et al.* (6), Motilal *et al.* (10), Potti and Arora (12), Roy *et al.* (13), Kumar *et al.* (9) and Kumar and Misra (8).

Number of florets/stalk

The highest dose of urea i.e. 3% spray maximized the production of florets/stalk significantly giving 13.79/stalk against 10.81 under control in pooled results of two years. Lowest concentration (1%) also increased the number of florets significantly over control in pooled years. Difference concentrations of KH_2PO_4 viz., 0.25, 0.50 and 0.75% although produced significantly higher number of florets as compared to control but remained at par among themselves in pooled results of experimentation. The number of florets decreased (12.48) when the concentrations of KH_2PO_4 was increased. The 3% urea irrespective of time of application produced significantly higher number of florets in comparison to 0.75% KH_2PO_4 , whereas, lower concentration of 2% urea was found superior than 0.50% KH_2PO_4 . It is abundantly clear that application of urea at 2 to 3% is more useful for floral parameters of gladiolus.

The number of florets in different treatments increased over control. It was however, maximum under 3% per cent spray of urea. Foliar sprays of KH_2PO_4 resulted in the increase of around 15%. Its different concentrations showed little effect suggesting

Table 1: Effect of floret parameters on production of florets under different treatments (pooled data of two years).

Treatment	Length of flower stalk (cm)	Days to first floret opening	Size of floret in diameter (cm)	No. of florets/ stalk
Control	83.20	89.82	5.65	10.81
Urea 1%	87.08	92.86	6.54	12.51
Urea 2%	90.04	93.04	6.68	13.39
Urea 3%	90.35	93.46	6.90	13.79
KH_2PO_4 0.25%	86.57	89.29	6.56	12.24
KH_2PO_4 0.50%	87.94	89.60	6.70	12.66
KH_2PO_4 0.75%	88.27	90.07	6.73	12.48
C.D. (P=0.05)	1.52	1.04	0.37	0.89

that even the lower concentration of 0.25% KH_2PO_4 proved as effective 0.75% in this regard. Fertilizers like urea and KH_2PO_4 applied as foliar sprays are quickly absorbed by leaves and soon enter in to various metabolites after assimilation. Foliar nutrition in optimal level quick brings plants at the adequacy level of the nutrients which in turn results into healthy production of reproductive organs. There are the NPK applied by foliar application have helped in the production of quality spikes in ornamentals and especially in gladiolus (Afify, 1; Bhattacharjee, 2; Potti and Arora, 12; Mukharjee et al., 11; Chadopadhyay et al., 4; Roy et al., 13; Bijimol and Singh, 3 and Dalve et al., 5).

Recommendation

For higher production of florets per stalk, the flower growers may be advocated for spray of 3% urea and 0.50% KH_2PO_4 solutions.

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