

Additional potassium nitrate application improved flowering, flower quality and corm yield of *Gladiolus grandiflorus*

In the east Mediterranean region of Turkey an experiment was carried out to determine the combined effect of  $GA_3$  with additional  $KNO_3$  fertilisation on flowering and some quality characteristics of

*Gladiolus grandiflorus*

‘Eurovision’ under plastic greenhouse conditions in late autumn planting. Corms were soaked in solutions of  $GA_3$  at 0 (control), 50 and 100 mg/kg for one hour and were dried in shade for 5 days before planting. The soil had a sandy-loam texture and sulphur was applied to decrease the soil pH to 7,0. As a basal dressing 30 g/m<sup>2</sup> ammonium sulphate and 45 g/m<sup>2</sup> triple superphosphate were applied before planting. All experimental plots received  $KNO_3$  at 25 g/m<sup>2</sup> at the three-four leaf stage (K1). Half of the plots (K2) received additional  $KNO_3$  applications at weekly interval continued until two weeks before the corms were harvested.

The treatment with 100 ppm  $GA_3$  and additional  $KNO_3$  fertilisation had a significant shortening effect on the time from planting to harvest of approximately 10 days compared to the controls (Table 1). The flowering percentage of plants which were additionally fertilised with  $KNO_3$  was higher than that of the plants fertilised only once with  $KNO_3$  at three-four leaf stage. The same increase with additional potassium nitrate was found for the flower stem length, spike length and the stem diameter. The results indicated that additional potassium nitrate applications (K2) significantly increased the final weight of the corms compared to K1. Fertilising plants with 25 g/m<sup>2</sup>  $KNO_3$  5 or 6 times in a weekly interval after three-four leaf stage was found to be effective to improve flowering, flower quality and corm yield.

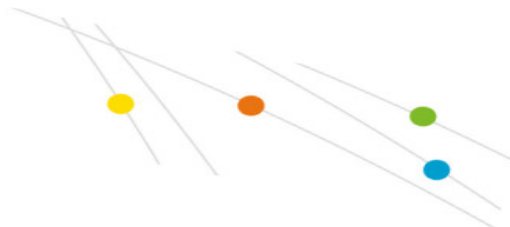


Table 1. The effects of  $GA_3$  and additional  $KNO_3$  fertilisation on flowering and quality characteristics of *Gladiolus grandiflorus* 'Eurovision'. K1 treatment received only once  $KNO_3$  and K2 treatment received additional  $KNO_3$ .

| Treatment |         | Time to harvest | Flowering percentage | Flower stem length | Stem diameter | Corm weight |
|-----------|---------|-----------------|----------------------|--------------------|---------------|-------------|
| $KNO_3$   | $GA_3$  | days            | %                    | cm                 | mm            | g/corm      |
| K1        | Control | 145 a           | 82 d                 | 129 b              | 11,7 b        | 55 b        |
|           | 50 ppm  | 143 ab          | 87 bc                | 129 b              | 12,0 b        | 59 b        |
|           | 100 ppm | 142 bc          | 90 ab                | 131 b              | 11,9 b        | 58 b        |
| K2        | Control | 143 ab          | 85 c                 | 135 a              | 12,7 a        | 68 a        |
|           | 50 ppm  | 140 c           | 88 b                 | 138 a              | 12,7 a        | 72 a        |
|           | 100 ppm | 135 d           | 92 a                 | 139 a              | 12,9 a        | 71 a        |