

## Effect of different irrigation systems on the performance of gladiolus (*Gladiolus grandiflorus* L.) cv. 'HAPPY END'

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### ABSTRACT

The experiment was conducted to evaluate the effect of different irrigation systems on the performance of gladiolus (*Gladiolus grandiflorus* L.) under Muzaffarnagar conditions in Uttar Pradesh. Results of experimental findings revealed that the seepage system of irrigation i.e. (I<sub>2</sub>) showed best performance than sprinkler (I<sub>1</sub>) and flood irrigation (I<sub>3</sub>) system. Sprouting of corms (9.38), height of plant (49.04 cm), number of leaves (6.98), number of tiller (1.20), number of cormels per plant (16.29), number of spikes per plant (1.80), length of spike (60.22 cm), weight of corms per plant (53.60 gm), weight of cormels per plant (38.63 gm) and diameter of corm (4.27 cm) were achieved maximum with seepage irrigation system (I<sub>2</sub>). However, minimum days for opening of first floret (110.22 days) and maximum florets per plant (15.09), was recorded for sprinkler irrigation system (I<sub>1</sub>). Whereas, number of corms per plant (2.45) was achieved maximum with flood irrigation system (I<sub>3</sub>).

**Key words:** Gladiolus, Irrigation, Happy End.

Gladiolus (*Gladiolus grandiflorus* L.) is an important cut flower crop in both domestic and international markets. Its cut spikes remain fresh at least for a week and are in great demand for presentations and interior decoration. Gladiolus occupies prestigious position among the bulbous cut flower crops. Productivity of gladiolus (florets, corms and cormlets) depends to a large extent on irrigation system. Among the various management practices, proper irrigation is very essential for higher plant growth and yield. Though in Western plain zone of Uttar Pradesh, gladiolus is gaining importance, still there is a felt need to standardize region specific production technology to produce quality spikes. Hence, an attempt was made to find out best irrigation system for profitable production of gladiolus crop. For the purpose present investigation was undertaken.

### MATERIALS AND METHODS

Experiment was carried out at the Horticulture Research Field C.C.R. (P.G.) College, Muzaffarnagar, during 2002-2003 in a Factorial randomized block design (FRBD), with three replications and three systems of irrigation viz.-sprinkler (I<sub>1</sub>), seepage (I<sub>2</sub>) and flood irrigation (I<sub>3</sub>). The soil of experimental field was exclusively loam in texture deficient in nitrogen and organic matter having soil pH 7.7. After preparation of field, calculated amount of FYM was incorporated in the field. Corms were treated with 0.2% Bavastin solution as a preventive measure against fungal infection. Corms

were sown in the field having plot size 1.4 m x 1.4 m. Proper irrigation and hoeing was done. To find out the relative performance, five plants were selected randomly and tagged in each plot for analysis of growth, flower and corm yield characters viz. number of sprouts, length of plant, length of leaves, number of spikes, length of spike, number of corm and cormel, diameter and weight of corms and cormels and various other similar characters. Data of the investigation is presented in the Table 1.

### RESULTS AND DISCUSSION

Table 1 revealed that maximum sprouting of corms (9.38) was achieved with seepage irrigation method (I<sub>2</sub>). Height of plant (49.04 cm) at subsequent stages of plant growth was also recorded with maximum with (I<sub>2</sub>) treatment. Number of tiller (1.20) were achieved maximum with (I<sub>2</sub>). Similarly number of leaves (6.98), number of cormels per plant (16.29), weight of corms per plant (38.63 gm), number of spikes (1.80), length of spike (60.22 cm) were achieved maximum with seepage system of irrigation (I<sub>2</sub>). The present results are in conformity to early findings of Cirrito *et al.* (1981). Diameter of corm (4.27 cm) was also recorded maximum with I<sub>2</sub> system of irrigation. However, minimum days for opening of first floret (110.22 days) and maximum florets per plant (15.09) were recorded for sprinkler irrigation system (I<sub>1</sub>). Similar results were recorded by Malavia *et al.* (1995) and El-Roumi (1981). Whereas, number of corms (2.45) was achieved maximum with flood irrigation system (I<sub>3</sub>). Tripathi *et al.* (2001) also reported same observations.