

EFFECT OF ORGANIC & INORGANIC FERTILIZERS ON GROWTH AND YIELD OF GLADIOLUS (GLADIOLUS GRANDIFLORUS I) CV. H.B. PITT

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Abstract: An experiment was carried out during the year 2004-05 on gladiolus on experimental field at department of Horticulture, Vasanttrao Naik Marathwada Agricultural University, Parbhani. The result on experiment revealed that application of organic manures in combination with inorganic fertilizers enhanced the growth and yield attributes in gladiolus cv. H.B. pitt over control. Highest growth attributes like plant height, number of leaves, fresh weight and dry weight on plant are higher in T6 (50% RDF + 50% vermicompost) also yield parameters i.e. number of spike/plot and per hectare number of corms per plant, were found better in treatment T6 (50% RDF + 50% vermicompost).

Key words: RDF FYM, vermicompost, Biomeal, growth, yield.

Introduction: Gladiolus is flower on glamour and perfection and known as the queen of bulbous flowers with majestic flower spike having florets of massive form, brilliant colour, attractive shapes, varying sizes and excellent keeping quality gladiolus flower is ideal both for garden and floral decoration. In maharashtra cultivation is done in rainy and winter season for obtaining good quality cut flowers and corm yield. However, the yield and quality of flower produced is low which needs to be increased by adopting improved horticultural techniques. Besides the climatic conditions, organic fertilizers also plays important role in quality growth and yield of flowers. Hence, the present investigation was under taken to study effect on organic and inorganic fertilizers on growth and yield of gladiolus.

Materials and Methods: The experiment was conducted on experimental field at department of Horticulture, Vaantrao Naik Marathwada Agricultural University, Parbhani during the year 2004-05 on gladiolus. The experimental soil was medium black and topography of land was fairly leveled. The experiment was laid out in Randomised Block Design with ten different treatments and three replications in monsoon season. The treatment details are given below : T₁ - 100% RDF (control), T₂ - 75% RDF + 25% FYM, T₃ 50% RDF + 50% FYM, T₄ - 25% RDF + 75% FYM, T₅ - 75% RDF + 25% vermicompost. T₆ - 50% RDF + 50% vermicompost, T₇ - 25% RDF + 75% vermicompost, T₈ - 75% RDF + 25% Biomcal, T₉ 50% FYM + 50% Biomcal, T₁₀ - 25% FYM + 75% Biomcal hlat beds were prepared of size 1.8m x 1.8m by leaving in space between two

explications and 0.5 m between two plots and spacing was 30 cm x 30 cm.

Random sampling technique was adopted and five plants were selected from each treatment and mean taken observations for height of plant (cm), number of leaves per plant, fresh and dry weight of plant, production of spike per plot and per hectare, number of corms per plant, weight of corms per plant and per hectare were taken.

Result and discussion: The results obtained from the present investigation as well as relevant discussion have been summarized under following heads.

Growth parameters:

Height of plant (cm): Data presented in the Table 1 show that maximum plant height (60.19cm) was recorded in treatment T₆ (50% RDF + 50% vermicompost) similar results were reported by Nethra et al. (1999) and Gharat (2004) in aster.

Number of leaves per plant: Data presented in the Table 1 show that significantly more number of leaves were recorded (16.93) in treatment T₆ (50% RDF + 50% vermicompost) at 90 days after planting. The reason for increased number of leaves per plant could be attributed to the solubilization effect of plant nutrients by addition on vermicompost leading to increased uptake of NPK as has been reported by Abusaleha and Shanmugavelu (1988).

Fresh and dry weight of plant: Data presented in Table 1 show maximum fresh and dry weight of plant is recorded in T₆ (50% RDF + 50% vermicompost) followed by T₃ (50% RDF + 50% FYM).

| Treatment | 90 days after plating | | Fresh weight of plant (gm) | Dry weight of plant (cm) |
|------------|-----------------------|----------------------------|----------------------------|--------------------------|
| | Height of plant (cm) | Number of leaves per plant | | |
| T1 | 54.78 | 14.87 | 241.24 | 46.09 |
| T2 | 55.35 | 15.01 | 244.20 | 46.39 |
| T3 | 56.72 | 15.95 | 271.29 | 51.54 |
| T4 | 51.67 | 13.17 | 179.79 | 31.15 |
| T5 | 56.20 | 15.57 | 255.15 | 48.15 |
| T6 | 60.19 | 16.93 | 274.94 | 53.23 |
| T7 | 53.21 | 13.17 | 238.68 | 45.22 |
| T8 | 55.72 | 15.20 | 246.74 | 47.74 |
| T9 | 58.80 | 16.19 | 267.24 | 50.77 |
| T10 | 52.87 | 13.42 | 224.39 | 42.63 |
| S.E. | 1.18 | 0.61 | 5.34 | 0.72 |
| CD (p=0.5) | 3.52 | 1.83 | 15.85 | 2.15 |

Yield parameters:

Number of spike per plot and per hectare: The data recorded in Table 2 indicate that treatment T6 (50% RDF + 50% vermicompost) exhibited maximum number of spike per plot (35.50) and per hectare (1.59 lakh).

Number of corms per plant, per plot: Data presented in table 2, show that maximum number of corms per plant (1.5) per plot (37.53) was recorded with treatment T6 (50% RDG + 50% vermicompost). Following by treatment T9 T6 (50% RDG + 50% Biomeal) and T3 (50% RDG + 50% vermicompost).

Weight of corms per plant, per plot and per hectare: Data recorded in table 2 shows that maximum weight of corms per plant (3.27 gm) and per hectare (36.27 gm) and per hectare (36.33) in treatment T6 (50%

RDG + 50% vermicompost) Followed by treatment T9 (50% RDF 50% Biomeal) and T3 (50% RDF + 50% FYM).

Weight of corms per plant, per plot and per hectare: Data recorded in Table 2 indicate that treatment T6 (50% RDF 50% vermicompost) gave more weight of corms per plant (44.76 gm), per plot (1192.2 gm) and per hectare (49.39). The results indicated that the application of inorganic fertilizers with organic manures were found highly beneficial due to healthy vegetative growth might have responsible for higher photosynthesis which might account for increasing weight of corms and cornels. This results were in agreement with Warade et al. (1995) and Waghachavare (2004) in onion.

| Treatment | Number of spike per plot | Number of spike per hectare (Lakh) | Number of corms per plant | No.of corms per plot | No.of corms per hectare (Lakh) | Wt. of corms per plant | Wt.of corms per hectare (Lakh) | Wt.of corms per plant (g) | |
|-----------|--------------------------|------------------------------------|---------------------------|----------------------|--------------------------------|------------------------|--------------------------------|---------------------------|-------|
| T1 | 28.25 | 1.25 | 1.2 | 30.01 | 1.33 | 39.13 | 43.3 | 1.77 | 19.66 |
| T2 | 29.00 | 1.28 | 1.3 | 33.01 | 1.44 | 39.40 | 43.7 | 1.87 | 20.77 |
| T3 | 32.50 | 1.44 | 1.4 | 35.02 | 1.55 | 40.96 | 45.5 | 2.83 | 31.44 |
| T4 | 25.00 | 1.11 | 1.0 | 25.04 | 1.11 | 37.86 | 42.0 | 1.50 | 16.66 |
| T5 | 30.00 | 1.33 | 1.3 | 32.54 | 1.44 | 40.03 | 44.4 | 2.60 | 28.88 |
| T6 | 35.50 | 1.59 | 1.5 | 37.53 | 1.66 | 44.76 | 49.3 | 3.27 | 36.33 |
| T7 | 26.30 | 1.16 | 1.1 | 27.53 | 1.22 | 38.70 | 42.9 | 1.20 | 18.88 |
| T8 | 29.50 | 1.31 | 1.3 | 32.52 | 1.44 | 39.80 | 44.2 | 1.94 | 21.55 |
| T9 | 34.00 | 1.51 | 1.4 | 35.04 | 1.55 | 43.90 | 48.7 | 2.93 | 32.55 |
| T10 | 26.00 | 1.15 | 1.1 | 27.50 | 1.22 | 38.00 | 42.2 | 1.60 | 17.77 |
| S.E. | 0.1 | 0.014 | 0.04 | 0.71 | 0.08 | 0.25 | 0.30 | 0.10 | 0.90 |
| CD | 0.3 | 0.04 | 0.13 | 2.10 | 0.25 | 0.76 | 0.90 | 0.30 | 2.65 |

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