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RESEARCH PAPER International Journal of Agricultural Sciences, Vol. 5 Issue 1, January to May, 2009 : 258-260

Effect of biofertilizers with reduced doses of nitrogen on growth and flowering of gladiolus

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ABSTRACT

An experiment entitled "Effect of biofertilizers with reduced doses of nitrogen on growth and flowering of gladiolus" was conducted during 2005-06 at the field of Floriculture Nursery Unit, Central Research Station, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. Results obtained in experiment suggested that use of biofertilizers with reduced doses of nitrogen significantly influenced the vegetative growth and flowering of gladiolus. It was maximum under reduced dose of nitrogenous fertilizer incombination of biofertilizers 75%N+ 100% PK (375: 200: 200kg NPK ha^{-1}) + *Azotobacter* + *Azospirillum* and it was found at par with 100% NPK (500:200:200 kg NPK ha^{-1}) *Azotobacter* + *Azospirillum.*

Key words :

INTRODUCTION

Gladiolus (*Gladiolus* sp.) is herbaceous plant belonging to family Iridaceae. It is one of the most important bulbous floral crop grown for its magnificent spike and useful both as cut flower and garden display. For obtaining good quality flowers, nutrition plays an important role and preferably nitrogen and phosphorus has been found more effective in improving vegetative growth of many flowering plants as reported by Bankar and Mukhopadhyay (1985). Indiscriminate use of chemical fertilizers has caused serious damage to the soil rendering them, often times, saline and less suitable for cultivation. On the other hand, biofertilizers offer an economically attractive and ecologically sound mean of improving quality and quantity of internal sources. Biofertilizers are less expensive and improve crop growth and quality of crops by production of plant hormones. Hence, the present study was undertaken to study the effect of biofertilizers on growth and flowering of gladiolus.

MATERIALS AND METHODS

The experiment was conducted at Floriculture Nursery, Parks and Garden Unit, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during the year 2005-06. The trial was laid out in Randomized Block Design with thirteen treatments replicated thrice. Treatments were undertaken by using *Azotobacter* and *Azospirillum* with reduced doses of nitrogen. Preplanning treatment of application of biofertilizers to corms was given 15 minutes before sowing and kept in shade. Corms selected for planting were about 25-30g in weight were planted in flat bed giving spacing 30 x 30cm and gross plot was 2.10 x 2.10m^2 accommodating 49 plants. One third dose of nitrogen as per treatments and the complete dose of phosphorus and potash was given at the time of planting. Remaining two third dose of nitrogen was given at two leaf stage and four leaf stage of the crop. Five plants were randomly selected from each treatment and observations regarding growth and flowering were recorded. All package of practices were followed during conduction of trial.

RESULTS AND DISCUSSION

The data in respect of growth and flowering attributes were record and presented in Table 1.

The Days required for sprouting of corms:

It is revealed from data presented in Table 1 that there were non-significant differences among the treatments in case of sprouting of corms. Non significant results might be due to presence of store food in corms, which resulted near about in equal sprouting.

Number of leaves per plant:

The maximum number of leaves per plant 21.00 were recorded under treatment T_3 (100% NPK + *Azotobacter* + *Azospirillium*) followed by reduced dose of nitrogen treatment T_6 (75% N + 100% PK + *Azotobacter* + *Azospirillum*) *i.e.* 20.67 leaves and these treatments were at par with each other. The minimum number of leaves 16.33 were observed under the control treatment T_{13} (0% RDF). Also the increased number of leaves were observed by alone application of *Azotobacter* (T_{10}), *Azospirillum* (T_{11}) and in combination (T_{12}) without N, as compared to Control treatment T_{13} (0% RDF). Increase in number of leaves particularly may be due to the production of more nitrogen by *Azotobacter* and

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