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Effect of organic manure and plant growth regulators on vegetative growth and flowering in gladiolus Cv. Nova Lux

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Abstract

The experiment was conducted in Randomized Block Design (RBD) with three replications. A field experiment was conducted to assess the effect of vermicompost (20t/ha, 15t/ha), (FYM 20t/ha, 15t/ha), Poultry Manure (20t/ha, 15t/ha), Vermicompost + GA3 (20t+100ppm, FYM + GA3 20t + 100ppm) and Poultry Manure + GA3 (20t+100ppm) on growth and flowering in Gladiolus Cv. Nova Lux. Application of Vermicompost + GA3 20t+100 ppm shows increasing growth character like Height of plants, Number of sprouts per corm, Length of largest leaf, Width of longest leaf, Number of leaves per plant and flowering characteristics such as Number of days for emergence of spike, Length of spike, Number of Florets per spike, Diameter and Length of Florets. Showed the maximum value followed by Poultry Manure+GA3 20t+100ppm.

Keywords: Vermicompost, FYM, poultry manure and GA3

Introduction

An important role of flower in human's life that it is used to convey emotions and thoughts. Flowers are associated with mankind since the dawn of the civilization. They are symbol; of love, beauty and tranquillity. In India, we have been growing and using flowers for time immemorial. Flowers have become integral part of our day to day life. Gladiolus occupied about 0.05 percent of the total cut flowers produced which is much lesser. In Maharashtra, gladiolus is cultivated in large scale in Pune, Nashik, Solapur, Kolhapur, Aurangabad, Nagpur districts. In India gladiolus is cultivated in an area about 11660 ha. The total area under floriculture was 305000 ha during 2019-2020 with a production of 2301 thousand tone of loose flower and 762 million cut flower (<http://agrihunt.com>). It has bright, beautiful and different coloured flowers which are used as cut flowers, herbaceous border, bedding, rockers pot it is also used in bouquet and flower arrangement having to excellent keeping quality. Gladiolus is a valuable an economic flowering bulbous plant used as a landscape plant in the home gardens and in decoration as long use life. The genus Gladiolus comprises about 180 species having more than 10,000 cultivars out of which about 20 cultivars are grown marketable for cut flowers purpose and numerous others are used as seasonal flowering plants in garden and in exhibitions (Kumar *et al.* 2019) [4].

Materials and Methods

The present investigation was carried out at Horticulture Garden of Janta College Bakewar, Etawah (U.P.) during year 2020- 2021, to find out the effect of Organic manure and plant Growth Regulators on growth and flowering parameters of Cv. Nova lux. Organic manures, vermicompost (VC), FYM and Poultry Manure (PM) were used with combination of GA3 @ 100ppm. The data were recorded for height of plants, number of sprouts sprouts per corm, length of largest leaf, width of longest leaf, number of leaves per plant. Number of days for emergence of spike, length of spike, number of florets per spike, diameter of florets, length of florets. The experiment was laid out in a randomized block design (RBD) with 10 treatments and three replications. Statistical analysis were done as per the procedure given by Panse and Sukhatme (1989) [6].

Results and Discussion

In present finding the maximum height of plant at 30 days was recorded (60.00 cm) under T8 Vermicompost (20t/ha.) + GA3 @ 100 ppm followed by (56.67 cm) with T10 poultry manure (20t/ha) +GA3 @ 100ppm and the minimum height of plant at 30 days (29.67 cm) was recorded in T1 (control) followed by (35.00 cm) with T5 (FYM 15t/ha). In the same pattern at 60 days and 90 days maximum height of plant was recorded (84.33cm) and (128.50cm) under T8 Vermicompost (20t/ha.) + GA3 @ 100 ppm and the minimum height of plant at 60 days and 90 days is (40.33 cm) and (48.23 cm) was recorded in T1 (control). The maximum number of sprout per corm was recorded (4.67) under T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by T10 poultry manure (20t/ha) + GA3 @100ppm is (4.00) and the minimum number of sprout per corm is (1.00) was recorded in T1 (control) followed by (1.33) with T5 (FYM 15t/ha). The result are in conformably with the finding of Kumar *et al.*, (2009) ^[4] and Umrao *et al.*, (2007) ^[9]. The maximum length of largest leaf at final stage was recorded (85.97 cm) under T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by T10 (78.87 cm) poultry manure (20t/ha) +GA3 @100ppm and the minimum length of largest leaf in final stage is (39.27cm) was recorded in T1 (control) followed by (43.37cm) with T5 (FYM 15t/ha). These findings are in agreement with Kumar *et al.*, (2008) ^[5].

The maximum width of longest leaf in final stage was recorded (3.68 cm) under T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (3.58 cm) with T10 poultry manure (20t/ha) +GA3 @100ppm and the minimum width of longest leaf is (1.00 cm) was recorded in T1 (control) followed by (1.37 cm) with T5 (FYM 15t/ha). The maximum number of leaves per plant at 30 days was found (7.67) under in T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (6.67) with T10 poultry manure (20t/ha) +GA3 @100ppm while minimum number of leaves per plant at 30 days (1.33) under T1 (control) followed by (1.67) with T5 (FYM 15t/ha). The maximum number of leaves per plant at 60 days (17.00) was found under T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (15.00) with T10 poultry manure (20t/ha) +GA3 @100ppm and the minimum

number of leaves per plant is (3.33) under T1 (control) followed by (4.33) with T5 (FYM 15t/ha). The maximum number of leaves per plant at 90 days (20.00) was found under T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (18.33) under T10 poultry manure (20t/ha) +GA3 @100ppm while minimum number of leaves per plant at 90 days (4.00) under T1 (control) followed by (5.00) with T5 (FYM 15t/ha). These finding nearly corroborate with the result of Cruz *et al.*, (2018) ^[2] and Ragini *et al.*, (2019) ^[7]. The maximum Number of days for emergence of spike (90.00) day was recorded under T8 Vermicompost (20t/ha) + GA3 @ 100 ppm and the minimum number of days emergence of spike (69.67) under T1 control. Maximum length of spikes was recorded (101.83cm) under the treatment T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (93.47) with T10 Poultry manure (20t/ha) +GA3 @100 ppm while the minimum length of spikes were produced (33.03cm) under T1 (control) followed by (40.43cm) with T5 (FYM 15t/ha). These results are in agreement with the finding of Aier *et al.*, (2015) ^[1]. Number of florets per spike (full blooming stage) ranges between (5.67 to 16.33). The maximum number of florets (16.33) was found under in T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (14.00) under T10 poultry manure (20t/ha) +GA3 @100ppm. while minimum number of florets per spike (5.67) under T1 (control) followed by (7.00) with T5 (FYM 15t/ha). The maximum diameter of florets (full blooming stage) (10.53cm) was recorded under in T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (9.43cm) with T10 Poultry manure (20t/ha) +GA3 @100 ppm while the minimum diameter of florets is (3.40cm) was recorded under T1 control followed by (4.20cm) with T5 (FYM 15t/ha). These results are in agreement with the finding of Farazi and Basaki (2013) ^[3]. The maximum length of florets (full blooming stage) (12.73cm) was recorded under in T8 Vermicompost (20t/ha) + GA3 @ 100 ppm followed by (12.20 cm) with T10 Poultry manure (20t/ha) +GA3 @100 ppm while the minimum length of florets is (5.70cm) was recorded under T1 control followed by (6.23cm) with T5 (FYM 15t/ha). These results are inconformity with the finding of Ram *et al.*, (2001) ^[8].

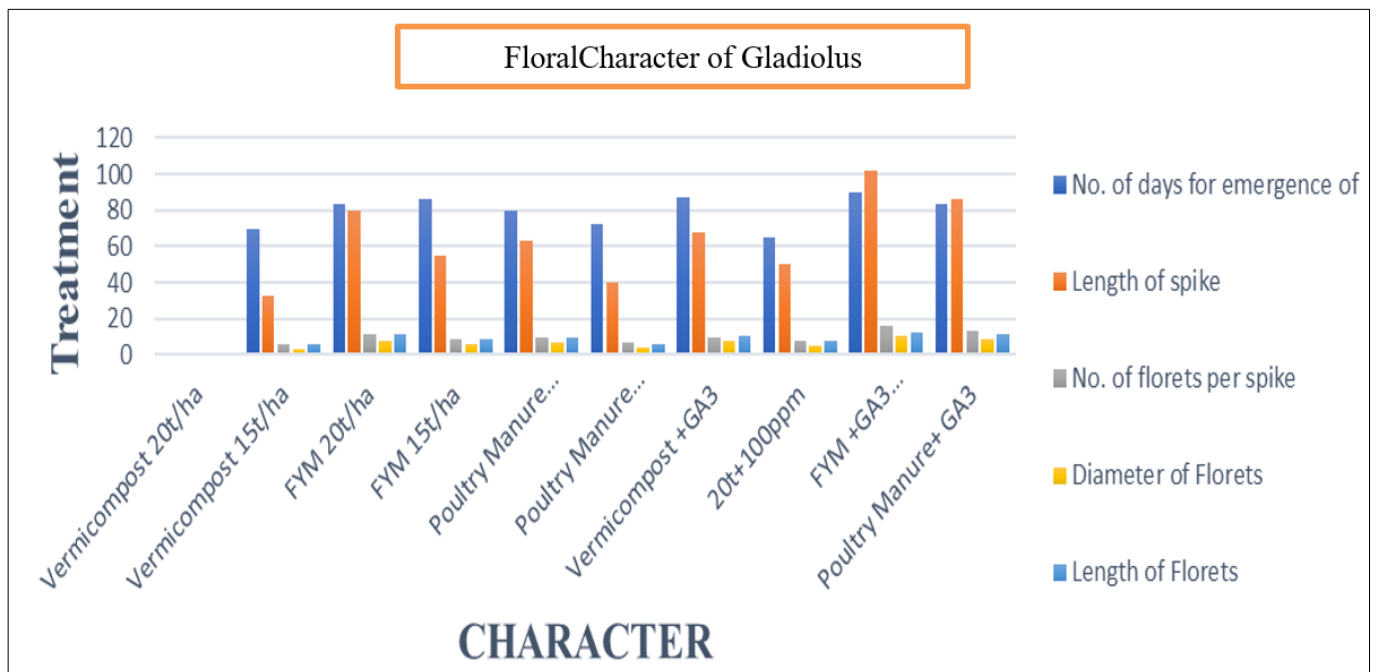
Table 1: Effect of Organic manure and plant Growth Regulators on vegetative growth in Gladiolus Cv. Nova Lux.

Treatment	Characters								
	Height of plant 30 DAS	Height of plant at 60 DAS	Height of plant at 90 DAS	No. of sprouts per corm	Leng the of largest leaf	Width of longest leaf	No. of leaves per plant at 30 DAS	No. of leaves per plant at 60 DAS	No. of leaves per plant at 90 DAS
Control	29.67	40.33	48.23	1.00	39.27	1.00	1.33	3.33	4.00
Vermicompost 20t/ha	50.33	71.33	88.53	3.00	71.17	3.38	5.00	10.00	16.33
Vermicompost 15t/ha	43.33	56.00	63.37	2.00	55.40	2.17	3.00	6.67	9.67
FYM 20t/ha	46.67	60.67	76.67	2.33	62.20	2.53	3.00	7.67	12.00
FYM 15t/ha	35.00	42.33	53.07	1.33	43.37	1.37	1.67	4.33	5.00
Poultry Manure 20t/ha	48.33	66.33	85.43	2.67	66.07	3.17	4.00	9.00	14.33
Poultry Manure 15t/ha	39.00	49.33	56.20	1.67	48.37	1.80	3.00	6.00	6.33
Vermicompost + GA3 20t+100ppm	60.00	84.33	128.50	4.67	85.97	3.68	7.67	17.00	20.00
FYM+GA3 20t+100ppm	53.67	76.00	96.70	3.67	76.13	3.37	6.00	11.67	17.67
Poultry Manure + GA3 20t+100ppm	56.67	81.00	116.83	4.00	78.87	3.58	6.67	15.00	18.33
CD at 5 %	2.71	3.35	4.22	0.79	1.69	0.29	1.53	1.38	1.52

Table 2: Effect of Organic manure and Plant Growth Regulators on Floral Character of Gladiolus Cv. Nova Lux.

Treatment	Character				
	No. of days for emergence of spike	Length of spike	No. of florets per spike	Diameter of Florets	Length of Florets
Control	69.67	33.03	5.67	3.40	5.70
Vermicompost 20t/ha	83.67	79.90	11.33	8.03	10.97
Vermicompost 15t/ha	86.00	54.97	8.33	5.83	8.40
FYM 20t/ha	79.67	63.23	9.33	6.83	9.30
FYM 15t/ha	72.67	40.43	7.00	4.20	6.23
Poultry Manure 20t/ha	87.00	67.97	10.00	7.63	10.27
Poultry Manure 15t/ha	64.67	49.97	7.33	5.23	7.53
Vermicompost +GA3 20t+100ppm	90.00	101.83	16.33	10.53	12.73
FYM +GA3 20t+100ppm	83.33	85.90	13.33	8.70	11.70
Poultry Manure+ GA3 20t+100ppm	75.00	93.47	14.00	9.43	12.20
CD at 5 %	2.57	3.54	1.55	0.65	0.47

Note; VC: Vermicompost, FYM: Farm Yard Manure, PM: Poultry Manure

**Fig 1:** Floral Character of Gladiolus

References

- Aier S, Langthasa S, Hazarika DN, Gautam BP, Goswami RK. Influence of GA3 and BA on Morphological, Phonological and Yield Attributes in Gladiolus cv. Red Candyman, Journal of Agriculture and Veterinary Sci. 2015;8(6):37-42.
- Cruz LRDD, Ludwig F, Steffen GPK, Maldaner J. Development and quality of gladiolus stems with the use of vermicompost and Trichoderma sp. in substrate, Ornamental Horticulture. 2018;24(1):70-77.
- Faraji S, Basaki T. Evaluation of plant growth regulators on phonologic stages and morphologic traits of Gladiolus (White prosperity cultivar). International Journal of Agronomy and Plant Production. 2013;4(7):1549-1551.
- Kumar KS, Shekar RC, Padma M, Shankar AS. Effect of plant growth regulators on dormancy, corm and cormel production in gladiolus (*Gladiolus grandiflorus* L.). J Ornamental Hort. 2009;12(3):182-187.
- Kumar A, Kumar A. Genetic Variability, Heritability, Genetic Advance and Genetic Divergence for yield and its contributing Traits in Gladiolus (*Gladiolus grandiflorus* L.) Int. J Curr. Microbiol. App. Sci, 2019;8(1):689-701.
- Panse VG, Sukhatme PV. Stastical method for agricultural workers. ICAR, New Delhi; c1989.
- Ragini BK, Chandrashekar SY, Naik BH, Shivprasad M, Sanpati M. Effect of bio- regulators on vegetative parameters of Asiatic lily cv. Pavia under protected condition. International Journal of Chemical and Biological Sciences. 2019;7(5):2618-2622.
- Ram D, Verma JP, Verma HK. Pre planting soaking of corms with growth regulators influences flowering in gladiolus. Annals of Agri Bio Research. 2001;6(2):163-167.
- Umrao VK, Singh RP, Singh AR. Effect of gibberellic acid and growing media on vegetative and floral attributes of gladiolus. Indian J Hort. 2007;64(1):73-76.