

## THE EFFECT OF CHEMICAL FERTILIZERS ON YIELDS OF GLADIOLUS FLOWERS TO THE CLIMATIC CONDITIONS OF THE YEAR 2013

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### **Abstract**

*This paper presents some aspects regarding the influence of chemical fertilizers NPK complex based (1: 1: 1) on "Development vigorous growth of wild gladiolus, namely" the number of leaves per plant, increasing their length, the total length of the rod floriferous, the total number of blue flowers "have on the rod under the climatic conditions of 2013 beer.*

*Keywords: gladiolus varieties, fertilization, growth, experimental variations, climatic conditions.*

### **1. INTRODUCTION**

Due to the beauty and elegance port, various color, resistance to water and flowers on the plant and its many uses, gladiola is one of the most beloved and popular flowers. Cut flowers are used for making bouquets, The showers and crowns, arranging various pottery, crystal or braided wicker baskets. Can be used alone or in combination with other flowers to decorate offices, halls, apartments, gladiola bloom lasts a long time in water and the flowering plant with buds gradually. All species of Gladiolus can be employed in planning parks and gardens originating in South Africa and brought to Europe in the eighteenth century, gladioli grown now belong mostly, Gladiolus species. For this work we used three species of gladiolus namely: Gladiolus "*Butterfly Holland Pearl*" dark garnet color of flowers; Gladiolus "*Green Star*" pistachio colored flowers, Gladiolus "*Madame de Paris*" color of flowers yellow / garnet. Administration fertilizer technology is one of the rings which provides for successful crop gladiolus, known as consuming food. Starting from this consideration, were administered chemical fertilizers, aiming to influence the quantity and quality of production of flowers.

### **2. MATERIAL AND METHODS.**

The research was done in the laboratory experimental field of Dendrology Research Station - Development of Horticulture Iasi. Were used NPK complex fertilizers based on (1:1:1) by a quantity of 0.150 kg per plant, dissolved in 1<sup>1/2</sup> l H<sub>2</sub>O. Experience was performed on three different variants are considered plant species. The experience took place during a calendar year (2013). Because the need nutrients can feel throughout the growing season differently, fattening mineral fertilizers must be made that plants have available the necessary elements in each phase. First fattening soil was applied 4-8 weeks after planting or when the third leaf

emergence. The second fertilizer was applied during root growth and the intensive vegetative growth. Third fattening applied during flowering and maturation bulbs and last small bulbs Planting was done on 04/12/2013 at distances of 25 cm between rows and 25 cm between plants in the row at a depth of 7-9 cm in a cambic chernozem, with the preceding plant legumes. Chemical fertilization made at intervals of 4-5 weeks (4-5 weeks after planting) a total of four treatments being applied.

**Table 1. Scheme experimentation.**

V <sub>1</sub> (A)
V <sub>2</sub> (B)
V <sub>3</sub> (C)

Tuberobulbs diameter planting was shown in table. 2.

**Table 2. Tuberobulbs diameter planting**

A	No .crt	1	2	3	4	5	6	7	8	9	10	11
	Ø	4	5	5	5,5	5	4,2	4,5	5	4,5	4,8	4
B	No .crt	1	2	3	4	5	6	7	8	9	10	11
	Ø	5,5	4,5	5	5	5	5,5	6	4,5	5,3	4,5	-
C	No .crt	1	2	3	4	5	6	7	8	9	10	11
	Ø	5	5,5	5	6	5,5	5,5	5,5	5	5	5	6

Legend:

A - variant 1 Gladiolus variety "Butterfly holland Pearl" - Fig.1 a.

B - variant 2 Gladiolus variety "Green Star" - Fig.1.b.

C - variant 3 Gladiolus variety "Madame de Paris" - Fig.1.c.

Observations and measurements were aimed number and length of leaves, flower production quantity and quality, the results were compared between variants.

### 3. RESULTS AND DISCUSSION

The studies were conducted in 2013, with the biological material 3 species of gladiolus. The first observations on plant emergence and growth in length of leaves was made on 05.10.2013. In terms of heat, 2013 (Tab.1) was a year with an average annual temperature of 7.9 ° C, minimum temperature was 3.5 ° C in February and maximum 21.0 ° C in August. The lowest temperature was recorded in January average - 3.5 ° C, the highest in June was 21.3°C. In terms of rainfall in 2013 has recorded an average rainfall of about 59 mm. The lowest amount of rainfall fell in October by 8.8 mm, and the greatest amount of precipitation fell in June to 179.6 mm. Humidity annual average was 74.66%, the highest humidity was recorded in December of 88.9% and lowest humidity was 52.0% in July.

From table 3 is observed that the average growth in length of the leaves is higher in variant A, ie the variety "Butterfly holland Pearl" and the lowest values of average increases are the variety "Madame de Paris".

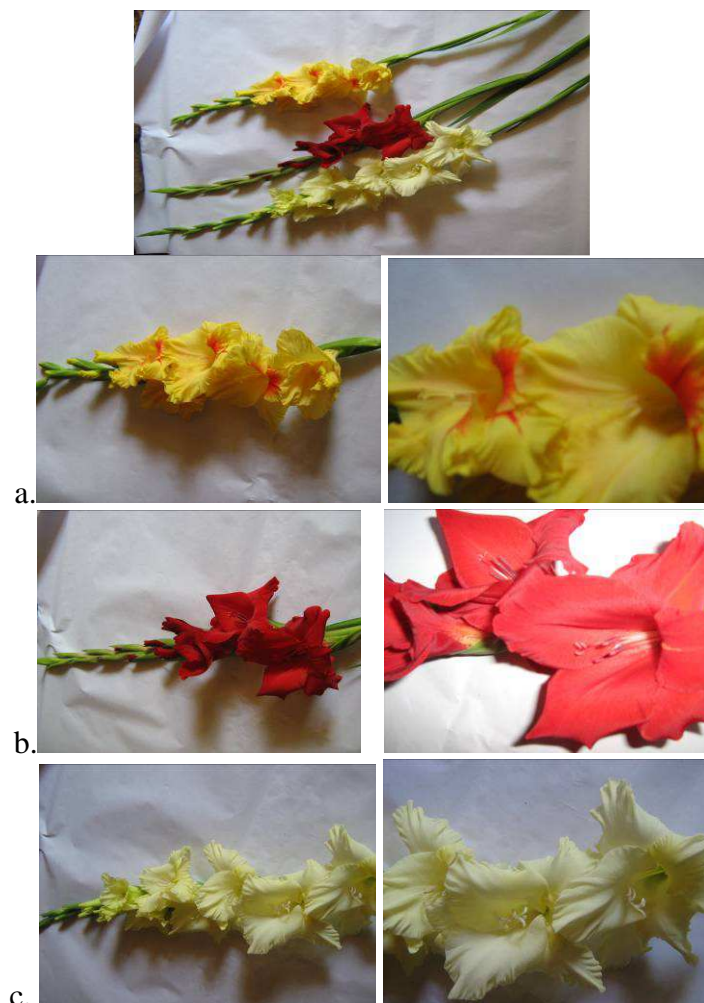


Fig.1. Flowering in gladiolus flower and stem (a,b,c)

Table 3. Climatic characterization of the agricultural year 2013

Month	Precipitation mm	Temperature °C	Humidity %
January	-3,5	60,4	-3,5
February	0,3	20,4	0,3
March	2	37,8	2
April	12	36,0	12,3
May	18,3	113,4	18,3
June	21,3	179,6	21,3
July	19,8	76,4	19,8
August	20,0	41,6	20,2
September	13,7	105,6	13,5
October	10,6	2,6	10,5
November	7,1	25,4	7,1
December	0,1	8,8	0,1
<b>Average</b>	<b>7,9</b>	<b>59</b>	<b>10,2</b>

**Table.3. Measurements of leaf growth in length (m)**

A	No. crt	1	2	3	4	5	6	7	8	9	10	11
	Average	0,58	0,61	0,61	0,79	0,55	0,56	0,57	0,60	0,60	0,41	0,36
B	No. crt	1	2	3	4	5	6	7	8	9	10	11
	Average	0,55	0,57	0,6	0,56	0,41	0,13	0,26	0,43	0,3	-	-
C	No. crt	1	2	3	4	5	6	7	8	9	10	11
	Average	0,44	0,23	0,33	0,45	0,44	0,35	0,39	0,45	0,50	0,44	0,20

**Table 4. The number of leaves per plant**

A	No. crt	1	2	3	4	5	6	7	8	9	10	11
	Average	6	5	6	9	10	5	5	8	8	7	3
B	No. crt	1	2	3	4	5	6	7	8	9	10	11
	Average	13	12	7	12	11	1	1	6	6	-	-
C	No. crt	1	2	3	4	5	6	7	8	9	10	11
	Average	10	10	11	13	9	9	8	12	13	13	4

In table 4 shows the average number of leaves per plant. Average was done by adding four counts of the number of leaves per plant at different dates. The data presented in the table it is observed that the largest number of leaves is the species "Madame de Paris "and the lowest average number of leaves per plant species are observed in gladiolus" Butterfly Holland Pearl".

**Table 5. The total length of the rod floriferous (m)**

A	No.crt	1	2	3	4	5	6	7	8	9	10	11
	T	0,80	1,25	1,25	1,28	1,27	1,25	1,41	1,28	1,45	1,0	1,05
B	No. crt	1	2	3	4	5	6	7	8	9	10	11
	T	1,00	1,00	1,05	1,09	0,90	-	-	1,25	1,40	-	-
C	No.crt	1	2	3	4	5	6	7	8	9	10	11
	T	0,90	0,80	1,20	1,15	1,30	1,10	1,00	1,15	1,30	1,0	1,30

Legend: T - total length of the rod floriferous.

Table 5 shows the total length of the rod floriferous. The total length is the length of the rod floriferous flower stem and the free flowers. The highest total length of the rod floriferous variety shows gladiolus "Butterfly Holland Pearl" and the smallest length of the rods are floriferous cultivar "Green Star".

**Table 6. Floriferous stem length (m)**

A	No crt	1	2	3	4	5	6	7	8	9	10	11
	t	0,22	0,53	0,49	0,33	0,52	0,54	0,53	0,64	0,55	0,18	0,37
B	No crt	1	2	3	4	5	6	7	8	9	10	11
	t	-	-	0,44	0,38	0,27	-	-	0,69	0,63	-	-
C	No crt	1	2	3	4	5	6	7	8	9	10	11
	t	0,28	0,24	0,58	0,59	0,50	0,63	0,59	0,45	0,51	-	-

Legend: t - rod length floriferous.

Table 6 is observed that the greatest lengths floriferous stems meet the variety of gladiolus "Butterfly Holland Pearl" and the smaller the species "Green Star".

In table 7 presents the number of flowers per flowering stem, the table shows that the largest number of flowers per stem is the species "Butterfly Holland Pearl "and" Madame de Paris "and the little flowers on the stem are the variety "Green Star". Diameter (Ø) basal flower being 14 to 18

cm, the variety "*Butterfly Holland Pearl*" (which flower color is garnet) and 10 -12 cm in diameter, the other two varieties studied, namely: "*Madame de Paris*" and "*Green Star*"

**Table 7. Number of flowers per flowering stem**

A	No crt	1	2	3	4	5	6	7	8	9	10	11
	f	9	14	14	12	15	15	16	10	20	18	11
B	No crt.	1	2	3	4	5	6	7	8	9	10	11
	f	-	-	16	15	24	-	-	20	18	-	-
C	No crt	1	2	3	4	5	6	7	8	9	10	11
	f	1 2	12	17	12	11	18	16	15	17	-	-

Legend: f - number of flowers per stem.

#### 4. CONCLUSIONS

In the cleansing was observed that the highest increases in leaf length was recorded at the species gladiolus "*Butterfly holland Pearl*".

Regarding the number of leaves per plant was found the highest number of leaves at the species "*Madame de Paris*";

What greater overall length of the rod was floriferous species "*Butterfly Holland Pearl*".

Number largest flower flowering stem met the variety "*Madame de Paris*";

In conclusion, it appears that the observations and measurements most suitable variety for cultivation is the variety "*Madame de Paris*"; it was found that the number of inflorescences per stem is the largest.

#### 5. REFERENCES

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