CONTRIBUTIONS ON THE DEVELOPMENT OF THE CALLA AETHIOPICA GROWING TECHNOLOGY

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Abstract

The experiment is looking o choose the best fertilizing method to obtain a high number of flowers. The romanian Triumph species was used in the experiment. It makes a large bush, the flower stem has 80-100 cm, and the flower is formed by 5-7 pieces.

As an apartment plant Calla becomes attractive through many varieties (dwarfs) that it has (Zaharia D; 1994).

In Romania Calla is less spread, situation that can be attributed to lack of culture technology (Selaru E.; 2004).

Key words: Calla aethiopica, mineral fertilizer, organic fertilizer, dimensions of floral elements.

INTRODUCTION

The beauty and the long duration of Calla aethiopica flowers (30-40 days) in water make them very appreciated and desired by buyers in our country. That is why experiments were made in the greenhouses of Oradea to prove the positive effect of fertilization on the growth and productivity of Calla aethiopica.

MATERIAL AND METHOD

The research was carried out in the Greenhouses Complex of Oradea, in 2009-2011. The experiment contained three variants:

V_1- unfertilized;

V_2- fertilized only with mineral fertilizer;

V_3- fertilized with half the quantity used in V_2 and 10kg/m^2 organic fertilizer.

V_2 was fertilized with 1200 kg/ha ammonium nitrate, 1800 kg/ha potassium sulphates, 600kg/ha superphosphate and 600kg/ha complex.

Every variant was cultivated on 57.6 m^2 and contained 24 plants.

The observations and determinations, which were made, were about measuring and counting the leaves, measuring and counting the floral elements and inflorescence.

RESULTS AND DISCUSSIONS

From table 1 it follows that the average length of the limb is 43.1 cm, the length of the unfertilized plants is smaller, the average length is 39 cm, and bigger at variant 3 with an average of 45,5 cm. The average breadth of the limb at all the three variants is 12.2 cm, but there is a little difference between them.

The average length of leaf stem is 88.2 cm, the minimum value being at variant 2, which represents only 88.5% of the average. The value in variant 1 is close to the average value, 100.3%, while variant 3 stands out slightly, representing 111.1% from the average length of the variants.

Looking at the diameter of the stalk, the order of variants is the same as in the length; variant 2 has a diameter of 21.9 mm and the average of the variant is 23.3 mm.

Table 1

The average dimensions of the leaves

Character	Variants			The average of the variants
	V_1	V_2	V_3	
The length of the limb/cm	39	44.8	45.5	43.1
% of the average	90.5	103.9	105.6	100
Breadth of the limb/cm	11.5	12.4	12.7	12.1
% of the average	94.3	101.6	104.1	100
The length of the leaf stem /cm	88.5	78.1	98	88.2
% of the average	100.3	88.5	111.1	100
The diameter of leaf stem /mm	23.8	21.9	24.2	23.3
% than the average	102.1	94	103.9	100

The third petal is free and almost perpendicular on the other two. This petal is bigger with a length between 11.9 and 12.1 and a breadth between 1.9 and 2.1 cm. The higher dimensions are found at variant 2.

From table 2 it follows that the mixed fertilized plants had a higher productivity than the plants which were fertilized with mineral fertilizer, but their productivity is also significant.

Table 2

The production of Calla aethiopica

Variants	The obtained production		Difference	The significance of the difference
	Absolute (flower/m^2)	Relative %		
V_1- unfertilized	35	100	-	-
V_2- fertilized only with mineral fertilizer	45	128	2.19	xx
V_3- fertilized with half the quantity used in V_2 and 10kg/m^2 organic fertilizer	57	163	3.65	xxx

LSD 5% - 1.07 LSD 1% -1.78 LSD 0.1% - 3.33

According to table 3 the production of flowers had high values from 35 flowers/m^2 at variant 1 and 45 flowers/m^2 at variant 2 to 57 flowers/m^2 at variant 3, the culture fertilized with half quantity used in V_2 and 10kg/m^2 organic fertilizer.

The relative aspect shows a high productivity of flowers at variant 2, exceeding variant 1 by 28%. Variant 3 also had 63% higher productivity than variant1.

The economical efficiency is favorable for every variant, but the best is at variant 3, fertilized with half quantity used in V_2 (600 kg/ha ammonium nitrate, 300 kg/ha potassium sulphates, and 300 kg/ha complex) and 10kg/m^2 of organic fertilizer (table 3).

Table 3

Production of flowers, expense and profit

Variants	Expenses (thousand lei/ha)	The flower production (thousand ha)	The value of the production (thousand lei/ha)	Profit (thousand lei/ha)
V_1- unfertilized	307 000	35 000	385 000	78 000
V_2- fertilized only with mineral fertilizer	317 000	45 000	495 000	178 000
V_3- fertilized with half the quantity used in V_2 and 10kg/m^2 organic fertilizer	329 000	57 000	627 000	298 000

CONCLUSIONS

- Growing Calla aethiopica in greenhouses is a good source of money;
- The thermal energy and water was propitious for version 3, with organic fertilizer.

- Conclusions – By adding 10 kg/m2 organic fertilizer, it led to an increase in the production by 12 flowers/m^2 in the variant fertilized only with mineral fertilizers. (v2)
- The best option both in terms of production and economic efficiency is variant 3.
- Results can help to extend the culture of Calla aethiopica species in Romania.

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