

STUDY CONCERNING THE INFLUENCE OF SUBSTRATUM'S CULTIVATION OVER THE PRODUCTION AND QUALITY OF THE ROSES CULTIVATED IN SOLARIUMS

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Abstract

Based upon experiments performed during four years under production conditions, regarding the cultivation substratum, the authors established the most efficient one (30% peat, 30% coniferous trees bark, 30% rotted manure and 10% beech leaves soil) for growing roses in solariums. They obtained an increase in the flower production (by 25%), in quality of flowers and higher profits (by 62863 RON/ha), compared to the results in regular crops, planted normally in the soil.

Key words: Roses, solarium, peat, soil, rotted manure.

INTRODUCTION

The higher productive potential and the gentleness of the flowers situate the rose in the floral species most appreciated, mostly for ripper flowers obtained in protected spaces between September and June. Different public options of the buyers regarding the cut flowers in Europe situate the rose on second place, after the carnation.

To stimulate the productive and quality potential of the flowers between 2008 - 2011 at Sântandrei (Oradea), were organized researches to specify the influence of the substratum's cultivation over the production and quality of flowers to the rose cultivated in a controlled environment.

MATERIALS AND METHOD

In this purpose we worked with the variety Red succes, which has red flowers and are robust plants resistant at diseases and custody in water. Were followed 3 variants, each with 4 repetitions with 108 plants for each repetition and a density of 8 plants/m² as follows:

V₁ - cultivation in soil;

V₂ - cultivation in peat 30%, coniferous tree bark 30%, rotted manure 30% and beech leaves soil 10%;

V₃ - cultivation in peat 50%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 10%;

V₄ - cultivation in peat 20%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 40%;

The planting was made in October, mentioning that in the first days after the planting the medium temperature was 15°C day and night, and after 16°C at night and between 17°C and 25°C during the day.

The relative humidity was maintained at the limit of 70 - 80%, and the soil humidity between 65 - 75% from the water capacity of the substratum. To differentiate the variants that we followed were made observations and estimations regarding the flowers production, the flowers quality and the economical efficiency.

RESULTS AND DISCUSSIONS

As you can see in Table 1, the flowers production registered values from 39,1 pieces/m² at the control variant, to 52,9 pieces/m² at the second variant, cultivation in peat 30%, coniferous tree bark 30%, rotted manure 30% and beech leaves soil 10%.

Table 1

The flowers production obtained (medium values 2008-2011)

Variants	Production obtained		±Δ	Diference semnification
	pcs/m ²	%		
V ₁ - cultivation in soil	39,1	100	-	-
V ₂ - cultivation in peat 30%, coniferous tree bark 30%, rotted manure 30% and beech leaves soil 10%	52,9	135,2	13,8	***
V ₃ - cultivation in peat 50%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 10%	48,8	127,3	10,7	**
V ₄ - cultivation in peat 20%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 40%	44,9	114,8	5,8	*

LSD 5% - 5,6

LSD 1% - 8,4

LSD 0.1% - 12,6

We remark an overtaking of the production of cut flowers with 35% at the second variant (very distinct meaningful) and with 27% at the third variant (distinct meaningful) against the first variant, the control one.

Regarding the flowers quality we remark that at the first variant, cultivation in soil, the total production of cut flowers is of 39,1 pieces/m², but only 32,1 pieces/m² are first quality, respective 82%, while at second variant the total production is of 52,9 pieces/m² at first quality were framed

49,8 pieces/m², respective 92,4% and at third variant from the total production of 49,8% pieces/m², 46,2 pieces/m² were first quality, respective 86,9% from the crop's total (Table 2).

Table 2

The quality of cut flowers production, under the influence of the substratum's cultivation
(medium values 2008-2011)

Variants	Flowers first quality		±Δ	Diference semnification
	pcs/m ²	%		
V ₁ - cultivation in soil	32,1	100	-	-
V ₂ - cultivation in peat 30%, coniferous tree bark 30%, rotted manure 30% and beech leaves soil 10%	48,8	152,3	16,8	***
V ₃ - cultivation in peat 50%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 10%	43,3	134,8	11,2	**
V ₄ - cultivation in peat 20%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 40%	58,4	119,6	6,3	*

LSD 5% - 17,2

LSD 1% - 9,5

LSD 0.1% - 5,3

The economical efficiency is favorable to all 3 variants, but with superior parameters for' the cultivation in peat 40%, coniferous tree bark 25%, rotted manure 25% and beech leaves soil 10% (Table 3).

As it results from Table 3, the total costs were of 368.379 RON/ha at first variant, the 575.100 RON/ha at second variant and 558.580 RON/ha at third variant, overtaking justified for second and third variants with the realiation of the artificial substratum's cultivation. At the same time with the spore of production and quality, the gross income grew from 417.300 RON/ha at first variant, at 562.900 RON/ha at third variant, reching the amount of 685.700 RON/ha at second variant, respective on overtaking of 145.600 RON/ha against third variant and of 268.400 RON/ha against first control variant with cultivation in soil. The profit obtained whwen it was used substratum made of peat 40%, coniferous tree bark 25%, rotted manure 25% and beech leaves soil 10% was higher with 61.679 RON/ha.

Table 3

Production of flowers, expense and profit

Variants	Costs effectuated RON/ha	Production value RON/ha	Profit realized RON/ha
V ₁ - cultivation in soil	368.379	417.300	48.921
V ₂ - cultivation in peat 30%, coniferous tree bark 30%, rotted manure 30% and beech leaves soil 10%	575.100	685.700	110.600
V ₃ - cultivation in peat 50%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 10%	468.580	562.900	94.600
V ₄ - cultivation in peat 20%, coniferous tree bark 20%, rotted manure 20% and beech leaves soil 40%	422.474	507.514	85.040

CONCLUSIONS

- The roses cultivation in solariums is a profitable activity, but differentiated with the cultivation tehnology applied.
- The flowers production was higher with 27% by cultivating the rose in solarium with substratum made of peat 60%, coniferous tree bark 15%, rotted manure 15% and beech leaves soil 10% and with 35% on a substratum made of 40%, coniferous tree bark 25%, rotted manure 25% and beech leaves soil 10%, against the classical cultivation in soil.
- We recuperate the additional cost used for the realization of the substratum at second and third variants, and at the same time we have a higher profit until 61.679 RON/ha.

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