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STUDIES ON THE CROP YEAR AND THE DENSITY INFLUENCE UPON THE SAGE PRODUCTION OBTAINED IN ORGANIC CULTURE

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INTRODUCTION

The influence of the environmental factors, except for risk factors (hail, frost) became lower and lower at the present, because of the modern, intensive and appropriate cultivation techniques. The year of production has a low influence in the case of the annual species, but we cannot say the same thing about perennial species. It is well known that environmental factors, especially pedoclimatic ones, have an influence on agricultural and horticulture production especially in the case of vegetable species. Because of that, there are „good years for onion", „good years for tomatoes" etc

MATERIAL AND METHODS

The experiments regard the Iulica genotype was created at the VRDS Bacau station.

Fig. 1 Sage culture aspects

The researches were conducted in 2007-2009 in an organic agricultural field of VRDS Bacau station. We studied the behavior of four densities on randomized blokes.We have also studied the influence of the production year on harvested sage.

RESULTS AND DISCUSSIONS

The individually influence of studied factors

A. The influence of production year.

Variance analysis for the different obtained crops during our researches show us that the differences come from characteristics of crop year, not from error, demonstrated by report value F (s_v^2/s_e^2) calculated as 17.79%, comparing $F_{theoretical}$ = 9.78 degree of confidence 99%. Regarding the crop registered values in four years, we can see a variation between 10.1 t/ha in the first year and 16 t/ha in the third year. The average was 13.5t/ha as we can see in table 1.

Table 1. Studies regarding the influence of production year on harvested sage 2007-2009

Crop year	Production obtained		Difference from xt/ha	Signification
	t/ha	%		
First year	10,1	74,8	-4,5	000
Second year	15,8	117,03	+2,3	***
Third year	16,0	118,51	+2,5	***
Fourth year	12,4	91,85	-1,1	0
Σ	54,3	-	-	
(mt)	13,5	100	-	

DL 5% = 0.81 t/ha
DL 1% = 1.4 t/ha
DL 0.1% = 2.2 t/ha

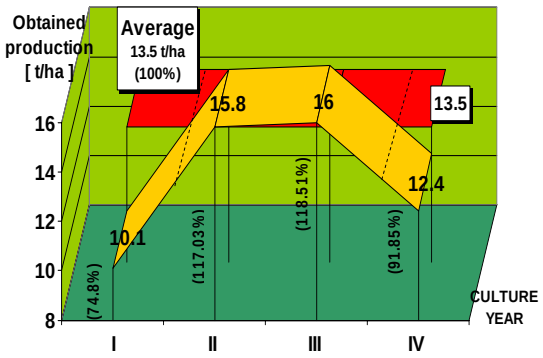

Fig. 1. The influence of year production on harvest at sage culture

We have obtained the biggest production differences comparing average in second and third year when we registered very significant spore, 2.3 t/ha, respectively 2.5 t/ha.

In the first crop year, the production was lower, 10.1t/ha. The difference was negative and very significant 4.5 t/ha comparing average.

In the fourth year the production begins to decrease.

We obtained 12.4 t/ha, with a negative significant difference 1.1 t/ha.

Analyzing table 2 and figure 2, we have observed a very significant influence of 65.000 plants/ha density on obtained quantity of sage, as Fisher test confirmed.

$F_{calculate} = 8.55$ for variance analyses, in condition of $F_{theoretical} = 4.49$

The Fisher test and analysis difference (including Student test) demonstrate a positive significance comparing average.

B. Studies regarding density influence on obtained production of sage

Table 2. The density influence on harvest of sage culture 2007-2009

Experimental variant	Density Thousands plants/ha	Obtained production		Difference from x t/ha	Signification
		t/ha	%		
1	55	11,8	92,9	-0,9	0
2	**65**	**15,2**	**119,7**	**+2,5**	***
3	75	12,3	96,85	-0,4	-
4	85	11,6	91,33	-1,1	0
	Σ	50,9	-	-	-
	x (mt)	12,7	100	-	-

DL 5% = 0.
DL 1% = 1.
DL 0.1% = 2.35 t/ha

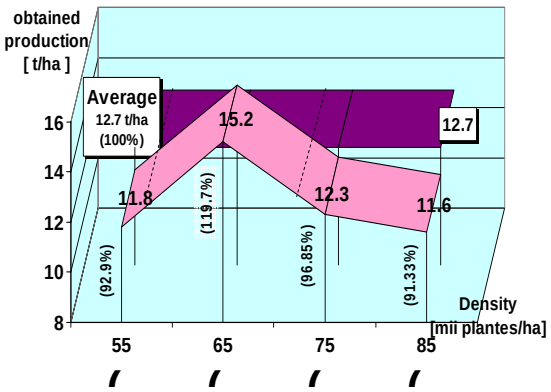

Fig. 2. The density influence on obtained production of sage

The best results regarding production was obtained in V_2 (15.2 t/ha) when the density was 65.000 plants/ha.

In that case we registered a very significant spore production 2.5/ha.

For the other variants (1.3 and 4), the production differences were negative: significant to V_1 (55.000 plants/ha) and V_4 (85.000 plants/ha), respectively insignificant at V_3 (75.000 plants/ha)

CONCLUSIONS

The sage culture in organic agricultural system

- the best results were obtained when the density was 65.000 plants/ha;
- the average was 19.5 t/ha, comparing 16.4 t/ha when the density was 85.000 plants/ha;
- the biggest production was obtained in the third year

ABSTRACT

Extending spicy and aromatic plant cultivation has some advantages, such as: continuous increase of production, the steady gross product, protecting species that are endangered in the spontaneous flora, developing a specialization of forms, which contribute to achieving additional income and better use of working hours throughout the year.

Organic farming is a modern method of cultivating plants, of fattening livestock and producing food by using those processes and technologies that are very close to the laws of nature – do not use fertilizers and pesticides synthesis, stimulating and growth regulators, hormones antibiotics and intensive farming systems.

Processes and procedures for obtaining organic products are governed by strict rules and principles of production, which are based on the quality of land and the quality of the final product.

Sage grown in an organic farming system, obtained the highest production in version of provided a planting density of 65.000 plants/ha. The average yield obtained was 19.5 t/ha, compared with 16.4 t/ha obtained in the variant where the density was 75.000 plants/ha and 16.0 t/ha at a density of 85.000 plants/ha.

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