

## STUDIES ON THE CROP YEAR AND THE DENSITY INFLUENCE ON THE THYME PRODUCTION OBTAINED IN ORGANIC CULTURE

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**Key words:** *perennial, thyme, organic, technologies*

### INTRODUCTION

Thyme is a perennial shrub. The production obtained is constant from the second to the fifth crop year. In the first year of vegetation, the root is pivoting, 20 cm length, and it continues to branch off in the following years. A lot of stems start to grow from the collet beginning with the third year of culture, giving a bush aspect to the plant. The stem is 20-50 cm high, thick, erect and the inferior part has a grey suber on it. The shoots have hairs headed downwards and start from the axil of the leaves. The leaves are small, 6-10 mm length, 2-4 mm wide, placed opposite, ovate lance late, hairy on reverse face.

### MATERIAL AND METHODS

The experiments regard Gelu cultivar. The analyzed genotype was created in VRDS Bacău.



Photo 1. Culture aspects - Thyme

We study the behavior of four densities in randomized blokes. We were also studied the influence of the production year on harvested thyme (first – fourth) culture year. The researches were conducted 2007-2009 in organic agricultural field of VRDS Bacău.

### RESULTS AND DISCUSSIONS

#### The individually influence of studied factors.

*The production year's influence.* Variance analysis for the different harvests obtained during our researches, show that the differences come from the characteristics of crop year, not from error, demonstrated by report value  $F (s_v^2/s_e^2)$  calculated as 17.79%, comparing  $F_{\text{theoretical}} = 9.78$  degree of confidence 99%. Regarding the harvest registered values in four crop years, we can see a variation between 8.4 t/ha in the first year and 14.5 t/ha in the third year. The average was 11.7 t/ha as we can see in table 1.

Table 1. The production year influence on thyme production (2007- 2009)

| Crop year  | Obtained production |              | Difference toward x (t/ha) | Difference signification |
|------------|---------------------|--------------|----------------------------|--------------------------|
|            | t/ha                | %            |                            |                          |
| I st year  | 8,4                 | 71,8         | - 3,3                      | 000                      |
| II nd year | 12,6                | 107,7        | + 0,9                      |                          |
| III year   | <b>14,5</b>         | <b>123,9</b> | <b>+ 2,8</b>               | <b>***</b>               |
| IV year    | 11,4                | 97,4         | - 0,3                      | -                        |
| $\Sigma$   | 46,9                | -            | -                          | -                        |
| x (mt)     | 11,7                | 100          | -                          | -                        |

DL 5% = 0.88 t/ha; DL 1% = 1.49 t/ha; DL 0.1% = 2.32 t/ha

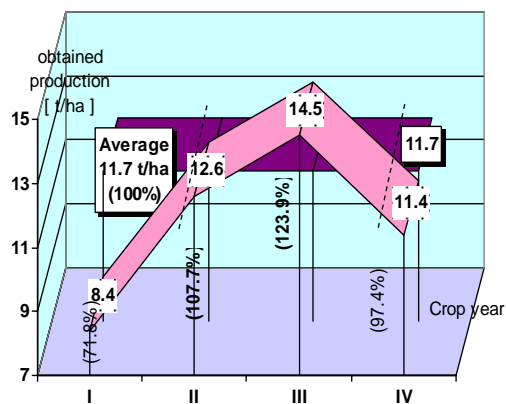


Fig. 1. The production year influence on thyme production (2007 - 2009)

### The density influence on Thyme production

From the data presented in table 2 and illustrated in figure 2, there results a very significant influence of 75.000 plants/ha density on harvest quantity, confirmed by Fisher.  $F_{\text{calculate}} = 9,95$  for variance analyses and  $F_{\text{theoretical}} = 4,49$ .

Table 2. The density influence on Thyme production

| Experimental variant                                      | Density (th plants/ha) | Obtained production |              | Difference toward x (t/ha) | Difference signification |
|---|------------------------|---------------------|--------------|----------------------------|--------------------------|
|   |                        | t/ha                | %            |                            |                          |
| 1   | 55                     | 11,8                | 92,9         | - 0,9                      | 0                        |
| 2   | 65                     | 12,3                | <b>96,85</b> | - 0,4                      | -                        |
| 3   | <b>75</b>              | <b>15,2</b>         | 119,89       | <b>+ 2,5</b>               | <b>***</b>               |
| 4   | 85                     | 11,6                | 91,34        | - 1,1                      | 0                        |
|   | $\Sigma$               | 50,9                | -            | -                          | -                        |
|   | X (mt)                 | 12,7                | 100          | -                          | -                        |
| DL 5% = 0.81 t/ha; DL 1% = 1.56 t/ha; DL 0.1% = 2.35 t/ha |                        |                     |              |                            |                          |

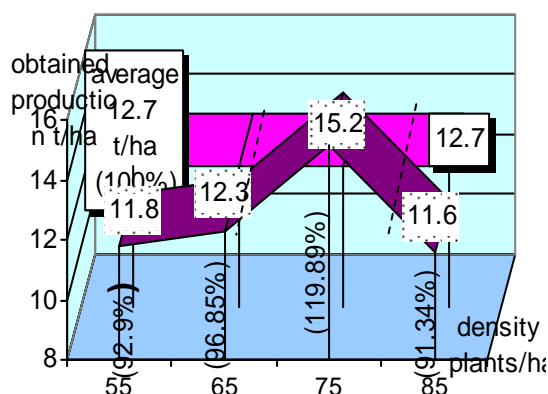


Fig. 2. The density influence on Thyme production

### CONCLUSIONS

This study on the thymus culture in an organic system indicated that:

- the highest production was obtained at 75.000 plants/ha
- the obtained average was 14.5 t/ha, comparing 12.65 t/ha at 65.000 plants/ha and 13.4 t/ha at 85.000 plants/ha.
- the highest production level was obtained in the third year.

### ABSTRACT

The thyme production obtained is constant from the second to the fifth crop year. In the first year of vegetation, the root reaches 20 cm, it is pivotal and lignified and continues to branch off in the following years. Starting with the third year of vegetation, more stems start to grow from the collet, giving the plant a bush aspect.

The stem is 20-50 cm high, thick, erect and the inferior part has a grey suber on it. The shoots have hairs headed downwards and start from the axil of the leaves. The leaves are small, 6-10 mm length, 2-4 mm wide, placed opposite, ovate lance late, hairy on reverse face.

The studies conducted on organic thyme allow recommending improved methods and techniques for increasing its culture density to 75 thousand plants/ha, which ensures a significant production growth.

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