

RESEARCHES ON THE PRODUCTION OF SOME BREEDS OF SALAD IN ECOLOGIC CULTURE

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Abstract

This study was accomplished with the purpose of evaluation of the quantity and quality of the production of different varieties of salad, cultivated in the glass house in ecologic conditions in the areal of North-Western Romania, that would assure on a long period of time the market with these products with special alimentary importance by the content in vitamins, mineral salts and active principles. The alimentary importance of the salad is based on the following therapeutic properties: refreshing, gettering, appetizer (at the beginning of the meals stimulates the digestive glands), remineralizing, analgesic, sedative, hypotonic, anticough, hypoglycemia activator (J., Laurin), emollient, laxative, anti putrid, hepatic collector.

In this study were analyzed in ensemble the production of salad compared to the witness. Depending on the type of salad was observed that all the breeds of "Roman" type had superior productions compared to the witness, while, the breeds of salad of leaves were situated under the level of witness. The salad of head and the Batavia type had productions closer to the Appia breed.

Key words: production of salad, breeds of salad, ecologic culture of salad, alimentary quality of salad.

INTRODUCTION

The salad is considered one of the most popular vegetables in the world but especially in some countries. In the present the salad is widely spread on all the continents, on greater surfaces, being cultivated in the countries from the Western Europe, USA, Japan. Although it is part of the same family as the garden chicory it is often confused with it. By existing more than one variety of salad, with quantities of vitamins, mineral salts and active principles depending on the variety, Marula is the richest in nutritive substance of the salad presenting important quantities of vitamins A, B₁, C, folic acid (B₉), Mn and Cr. There is a very well known discrepancy between the nutritive value of the salad of head and the others forms of salad, in favor of the latter (Rubatzky and Yamaguchi, 1997).

The therapeutical effects of the salad are due to the high content of alcaloids as: asparagine, lactuca, bioscianina. The salad helps the digestion, improving the activity of the liver. Doctor Jean Valnet (1990) identifies and attributes the following therapeutical properties of the salad: refreshing,

getting, appetizer (at the beginning of the meals stimulates the digestive glands), remineralizing, analgesic, sedative, hypotonic, anticough, hypoglycemia activator (J., Laurin), emollient, laxative, anti putrid, hepatic collector.

MATERIAL AND METHOD

In a vegetable microfarm certified ecologically situated in Husasau de Tinca, Bihor, in 2015 were created 2 experiments with salad. The first was planted at the end of May and the second was created in the beginning of September. Both experiments, monofactorial, were arranged by the method of subdivided blocks, with 14 versions in three repetitions. Each version had a number of 15 plants.

The biological material was represented by 14 breeds of salad of many types, thus:

- Roman salad - Dark Green, Blonde Maraichere, Blonde Lente a Monter,
- salad of type Batavia - Long Stading Batavian and Jester,
- leaves salad was represented by Lola Rosa and Lola Bionda.

The rest of 7 breeds were breeds of salad of head respectively Anueme, Gloire de Mantes, Merveille de 4 Saison, Grass Blonde Peresuble, Laituie Silvesta and Appia breed, the last being also the witness of the experiment.

The processing of the experimental data was made by the analysis of the variation.

RESULTS AND DISCUSSION

In this experiment was analyzed the absolute and relative production of salad, compared to the witness of experiment.

Table 1. presents the production of salad at the 14 breeds studied.

Analyzing in ensemble the production of salad are observed variations by comparing to the witness. Depending on the type of salad is observed that all the breeds of "Roman" type had superior production to the witness, while the two breeds of leaves were situated under the level of the witness production. The head salad and the type Batavia had productions closer to that of the breed Appia.

With an absolute production of 1.82 kg/m^2 and an increase of production compared to the witness of 45.60 % the breed Dark Green had the greatest production. The difference from the witness was assured statistically, positively very significant. Also the other breeds of "Roman" type have registered productions of 0.49 kg/m^2 over the witness, the breed Blonde Maraichere respectively 0.43 kg/m^2 for the breed Blonde Lente a

Monter. For both breeds the differences to the witness were assured statistically, positively very significant. The two breeds of Batavia type behaved differently compared to the Appia breed. Thus the breed Jester, a breed of attracting leaves (green with red dots) beat the production of the witness with 2.4 t/ha, the difference being assured statistically distinctly significant positive and Long Standing Batavian, beat with just a bit the production of the witness, the difference not crossing the limit of $p = 5 \%$, not being assured statistically.

Table 1.

The production of salad in ecologic conditions of crop, year 2015

| No. crt. | Type | Absolute production kg/m ² | Relative production | $\pm d$ kg/m ² | Significance |
|----------|----------------------------|--|------------------------|------------------------------|--------------|
| 1 | Dark Green | 1.82 | 145.66 | + 0.57 | xxx |
| 2 | Blonde Maraichere | 1.74 | 139.2 | + 0.49 | xxx |
| 3 | Blonde Lente a Monter | 1.68 | 134.4 | + 0.43 | xxx |
| 4 | Long Standing Batavian | 1.37 | 109.6 | + 0.12 | - |
| 5 | Jester | 1.4 | 119.2 | + 0.24 | xx |
| 6 | Anuenue | 1.23 | 98.4 | - 0.02 | - |
| 7 | Kwiek | 1.24 | 99.2 | - 0.01 | - |
| 8 | Gloire de Nantes | 1.45 | 116.0 | + 0.20 | x |
| 9 | Merveille des 4 Saisons | 1.27 | 101.6 | + 0.02 | - |
| 10 | Lollo Rossa | 0.97 | 77.6 | - 0.28 | 000 |
| 11 | Lollo Bionde | 1.03 | 82.4 | - 0.22 | 00 |
| 12 | Grosse Blond Parsseuse | 1.43 | 114.4 | + 0.18 | x |
| 13 | Laituie Silvesta | 1.38 | 110.4 | + 0.13 | - |
| 14 | Laitue Pomme Appia | 1.25 | 100.0 | - 0.00 | - |

From the breeds of head salad were highlighted with productions over the production of Appia, Gloire de Nantes and Grosse Blond Parsseuse breed.

The first breed had an increase of production of 16 % respectively 14.4 % for the second. For both breeds the differences from the witness were assured statistically significantly positive. The other breeds of head had smaller productions or greater around the production of the witness, not being assured statistically.

Even if the breeds of leaves studied have an attracting aspect and very appreciated by the consumers, their production is very small.

In case of the breed Lollo Rossa, it obtained only 77.6 % of the production of the witness, the difference from it being assured statistically distinctly significantly negative. For the breed Lollo Bionde the dimension of the rosace was greater being harvested 0.06 kg/m² more than for Lollo

Rossa. The difference from the witness was assured statistically distinctly significantly negative.

CONCLUSIONS

The researches performed at the microfarm from Husasau de Tinca that had as biological material 14 breeds of salad, allowed that in the final to be elaborated a few conclusions:

1. The production of salad is influenced by the type of salad used, the higher being the Roman salad and the smaller being that of leaves.
2. The best capacity at the unit of surface was that of Roman salad Dark Green with an absolute production of 1.82 kg/m² with an increase of production from the witness of 45.60 %.
3. The batavia salad underlined a high production of the breed Jestor with over 13 t/ha in the autumn crop.
4. The breed Lolla Rossa, one of the most appreciated by the consumers due to the taste and attractive aspect doesn't succeed to convince in the production chapter, this being on the last place with an absolute production of 0.97 kg/m², with an increase of production from the witness of 7.6 %.

REFERENCES

1. Apahidean, AL.S., 2003, Cultura legumelor, Ed. Academic Pres, Cluj-Napoca.
2. Apahidean, Maria, Al.S.Apahidean, 2004, Cultura legumelor și ciupercilor, Ed. Academic Pres, Cluj-Napoca.
3. Apahidean, Maria, 2008, „2nd Coordinating Meeting of the Regional FAO Working Group on Greenhouse Crop Production in the SEE Countries”
4. Cantliffe, D.J., S.C. Phantac, 1974 „ Nitrate acumulation in greenhouse vegetable crops.”. Canadian Journal of Plant Science, vol.54, p. 783-788.
5. Ciofu Ruxandra și colab., 2004, Tratat de legumicultură, Ed. Ceres, București, 2004
6. Choux Ci., Fory Ci., 1994, Productions legumieres vol. I-III, Lavoisier, TEC/DOC, Paris
7. Indrea D., Al.S., Apahidean, Maria Apahidean, D.N., Măniuțiu, Rodica Sima, 2009, Cultura Legumelor, Ed. Ceres, București.
8. Indrea D., Al.S., Apahidean, 2012, Ghidul cultivatorului de legume, Ediția a II-a. Ed. Ceres, București.
9. Indrea, D., Apahidean, AL..S., 2004, Ghidul cultivatorului de legume. Ed. Ceres, București.
10. Indrea D., 1968, Cercetări privind agrobiologia salatei și fasolei de grădină. Teză de doctorat. IANB, București.
11. Popescu V., Horgoș A., 2003, Tratat de legumicultură. Editura Ceres, București.
12. Voican V., 1972, Efectul intensității luminii asupra creșterii și dezvoltării asupra unor specii legumicole.
13. Valnet Jean, 1990, Se soigner par les legumes les fruits et les cereales. Librairie Maloine