BEHAVIOR OF SOME LETTUCE VARIETIES IN ECOLOGICAL CULTURE WITH FOOD AND DECORATIVE VALUES

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Abstract

*Lettuce is much more appreciated by consumers for its low quantity of calories , but high in vitamins and mineral salts and many in parallel, especially when presented throughout the period. The assortment of varieties is very rich, many of them and an ornamental appearance, making them available for landscaping. The study of the behavior of several varieties of lettuce has revealed from time to time while there is a certain variety and potential production as w*ell.

Key words: lettuce, varieties, production potential

INTRODUCTION

Vegetables are of particular importance in nutrition due to the contribution of vitamins and mineral salts, indispensable to the human body; they are the raw material for the canning factories and not least, an important source of income for those who cultivate them (Apahidean Al.; Maria Apahidean, 1994).

Of the green vegetables, the lettuce occupies the first place both in terms of consumption but also of the cultivated areas. The lettuce is of great nutritional importance due to its high carbohydrate content 2-3,5%; protide1-1,6%; carotene 1-3 mg / 100g fresh product; vitamins B1-0.07 mg / 100 g fresh product; B2-0.12 mg / 100 g fresh product; C - 5-20 mg / 100 g fresh product and phosphorus salts: 1-7 mg / 100 g fresh product and potassium salts 260 mg / 100 g fresh product. The lettuce culture in the field, greenhouses and solariums also makes it available for consumption even in winter and early spring, when vitamin deficiencies are more pronounced. The lettuce is used for consumption, mainly in the raw state, in some culinary dishes, however, it is subjected to the boiling process (Bodea, 1984). Lettuce grown in the field has a higher vitamin C content than forced or protected crop (Horgoş, 2003).

An adverse influence on the health of the consumers is the nitrates of the lettuce. The level of nitrate content in lettuce is influenced by both genetic (cultivar used) and ecological (temperature, light intensity, soil moisture) and technological factors (nitrogen fertilization, use of fertilizers

with gradual release of the active substance). Of these factors, nitrogen fertilization and light intensity were found to have a major influence on the level of nitrates accumulated in the lettuce. (Cantliffe, 1974).

There are several varieties of lettuce, with quantities of vitamins, mineral salts and active principles depending on the variety, Marula is the richest in nutrients between the lettuce varieties, presenting significant quantities of vitamins A, B1, C, folic acid (B9), Mn and Cr. There is a very well recognized discrepancy between the nutritional value of the head lettuce and the other forms of lettuce, in favor of the latter (Rubatzky and Yamaguchi, 1997). The nutritional content of different types of lettuce per 100 g fresh substance is presented in table 1.2. Dr. Jean Valnet describes the main constituents known in lettuce, which are: lactucarium whose effects are comparable to those of opium; lactucarine; lactucine; lactic acid; aspatragine; biosciamine; chlorophyll, vitamins A, B, C, D, E, Fe, Ca, P, I, Mg, Zn, with Na, Cl, K, Co, phosphates, sulphates, sterols, carotene. The lettuce has one of the most important qualities, namely the fact that within each type there are red, gold and of course green varieties, offering many possibilities for color combinations and contrast. It should be placed in the foreground because it is a small species. For decorative purposes it is recommended: sown on a single row or in strips between rows of leeks, onions, onions and garlic; making models in the form of circles, in the form of 8 or zigzags between newly planted or large celery plants; sown in the asparagus layers at the end of the harvest period (Larkom, 1997).

MATERIAL AND METHOD

The experience regarding the behavior of some varieties of lettuce was located in a vegetable micro-farm located in the northwest of Romania, in the town of Husasau de Tinca in 2015. The micro-farm includes culture in solariums and in the field. The varieties were placed in a solarium of dimensions 53m long and 10m wide, in a comparative competition culture with 13 variants in 3 repetitions. The witness was represented by the Domiziana variety. The experimental plots were placed using the subdivided blocks method, each variant had a number of 30 plants. The processing of the experimental data was done according to the single-factor experience model using variation analysis. The biological material was represented by 13 varieties, namely: Lolo Rosa, Red Earred Butterheart, Lettuce Bowl Red, Briscia Rosa, Amish Deer Tongue, Xeno's Density, Emerald Fan, Lettuce Bowl Green, Cressonnette du Maroc, LolloBionda, Blonde Maraichere, Ballon and Domiziana.

RESULTS AND DISCUSSIONS

In the present experience the early production was analyzed for each variety, the average of the distributions being recorded and statistically processed in table 1. Analyzing the overall early production, it is observed that most varieties have a lower early relative to the control. The best early production was recorded in the Lollo Bionda variety with an increase of early production of 59.55%, the difference from the control being statistically assured, very significant positive. With a relative production of 3.75 kg / m2, the Emerald Fan variety had a production of 1.08 kg / m2 greater than the control. And this difference from the witness was statistically assured, very significant positive.

With a slightly lower production increase of only 17.97%, the Blonde Maraichere variety was in third place in terms of early age. The difference from the witness was statistically positive, distinct, significant. Although the Cressonnette du Maroc and Amish Deer Tongue varieties obtained early yields higher than the Domiziana variety, the difference from the control was quite small, failing to exceed the p = 5% threshold, thus not being statistically assured. If these were some varieties that had an impurity higher than the control, the rest of the varieties made early productions below the Domiziana variety. Thus the worst early production was recorded in the Lettuce Bowl Red variety, which accounted for only 60% of the control production. The difference from this was ensured statistically, negative, very significant.

Table 1

Early lettuce production

Nr. Crt.	Variety	Absoluteproductionkg/m^2	Relative production%	±d kg/m^2	Signification
1.	Lolo Rosa	1,89	70,78	-0,78	000
2.	Red Earred Butterheart	2,34	87,64	-0,33	0
3.	Lettuce Bowl Red	1,83	68,53	-0,84	000
4.	Briscia Rosa	2,15	80,52	-0,52	00
5.	Amish Deer Tongue	4,82	105,61	+0,15	-
6.	Xeno's Density	2,24	83,89	-0,43	00
7.	Emerald Fan	3,75	140,44	+1,08	xxx
8.	Lettuce Bowl Green	1,62	60,67	-1,05	000
9.	Cressonnette du Maroc	2,91	108,98	+0,24	-
10.	LolloBionda	4,26	159,55	+1,59	xxx
11.	Blonde Maraichere	3,15	117,97	+0,48	xx
12.	Ballon	1,95	73,03	-0,72	000
13.	Domiziana (Martor)	2,67	100,00	0,00	-

LSD 5 % = 0.32 LSD 1 % = 0.42 LSD 0.1 % = 0.5

With early low yields, the varieties Lolo Rossa, Lettuce Bowl Red and Ballon were noted, varieties that made between 68.53% and 73.03% of the production of the Domiziana variety. And in these varieties the differences from the witnesses were provided statistically, negative, very significant. Briscia Rosa and Xeno's Density varieties were slightly earlier with smaller

differences compared to the control of 4.3 t / ha and 5.2 t / ha in Briscia Rosa. These differences from Domiziana were provided statistically negative, distinctly significant. The Red EarredButterheart variety came closest to witnesses, providing 87.64 of its production. The difference was ensured statistically negative, significant.

If, in the case of early production, the differences from the control, both in the positive and negative sense, were quite large, in the case of the total lettuce production it is observed that most varieties obtained higher yields than the control. This denotes the fact that many of them are considered only of ornamental value (by some authors), but also have a high production potential. The only variety that produced a lower production than the control, but which can be taken into account was Briscia Rosa with a relative production of 87.32% of that of the control. The difference from the witness was statistically insured, significantly negative.

Another three varieties had a lower production potential than the respective control LolloRossa, Red EarredButterheart and Amish Deer Tongue, but the differences with the control did not exceed the threshold p = 5%, thus not being statistically assured. There were several varieties with higher yields than the control, but the differences were not statistically assured being very small. These were Lettuce Bowl Red and Ballon.

Xeno's Density variety with an absolute production of 4.78 kg / m 2 and a production increase of 14.35% was the first variety to be noted with a productive potential that deserves to be recorded compared to the control. The difference from Domiziana was ensured statistically significant positive. In ascending order it is followed by the Blonde Maraichere variety, which compared to Domiziana recorded 8.6 t / ha more. The difference was ensured statistically, positive, distinct, significant.

Table 2

Total lettuce production

Nr.crt	Variety	Absolute production kg/m^2	Relative production %	±d kg/m^2	Signification
1.	Lolo Rosa	3.84	91,86	-0,34	-
2.	RedEarredButterheart	3,79	90,66	-0,34	-
3.	LettuceBowlRed	4,56	109,90	+0,38	-
4.	Briscia Rosa	3,65	87,32	-0,53	0
5.	AmishDeerTongue	3,96	94,73	-0,22	-
6.	Xeno’s Density	4,78	114,35	+0,60	X
7.	Emerald Fan	5,94	142,10	+1,76	Xxx
8.	LettuceBowl Green	5,22	124,88	+1,04	Xxx
9.	Cressonnette du Maroc	6,48	155,02	+2,30	Xxx
10.	LolloBionda	5,10	122,00	+0,92	Xxx
11.	Blonde Maraichere	5,04	120,57	+0,86	Xx
12.	Ballon	4,20	102,94	+0,02	-
13.	Domiziana (Martor)	4,18	100,00	0,00	-

LSD 5% = 0.50
LSD 1% = 0.65
LSD 0.1% = 0.88

Of the analyzed varieties, the highest productive potential was registered the Cressonnette du Maroc variety, whose owners managed to reach a production of over 60 t / ha and a production increase of 55%, compared to the control. This was ensured statistically positive, significant. Quite large yields were also obtained by the varieties Emerald Fan and Lettuce Bowl Green and LolloBionda with significant production increases from 22% at LolloBionda to 42% at Emerald Fan. All the differences from the witness were statistically positive, positive, very significant.

The ornamental appearance of the 13 varieties analyzed

In this experience, the food value and the decorative value of the 13 lettuce varieties were analyzed.

Due to the different size and color varieties of these varieties we were able to make different color combinations and contrasts.

The lettuce border

The edges of the lettuce are about 20 cm high with a very compact appearance created by the interweaving of the ridge leaves. By repeating the 13 varieties on two interspersed rows we obtained the appearance of a different colored and compact border.

The most used varieties of lettuce for curds are Lettuce Bowl Green and Lettuce Bowl Red because these varieties do not form heads but only leaf rosettes, which regenerate after they have been mowed or their leaves have been selectively harvested.

The lettuce boards can be placed along the alleys, or anywhere between vegetables and why not on the lawn making the transition from it to the vegetable garden or shrubs. They can be made from the same variety of lettuce, or from several combinations, from a single color or variously colored.

Lettuce in pots and gardeners

Another way to decorate the garden with lettuce is to use gardeners or pots. The lettuce is beautiful and decorative and in pots. They can be placed in any part of the garden, both on the lawn, tiles and on various supports.

CONCLUSIONS

The research regarding the behavior of some varieties of lettuce grown in the solariums allowed the elaboration of some conclusions and recommendations:

1. The dietary value of lettuce has been known since ancient times, and in recent decades this value has been filled with the decorative appearance of lettuce varieties.

2. Many of the varieties analyzed have their origin in the 20th century, however, their value was only revealed towards the end of the 20th century.

3. With a pleasant appearance with a customized name LolloBionda was also noted with the best early age of all the varieties studied, having an early production of 4.26 kg / m ^ 2.

4. The chosen pointer proved to have a good early age, of the 13 varieties studied was 6th.

5. Even though most of the varieties studied have shapes and colors that differ more or less from the classic lettuce varieties, their production potential managed to surprise.

6. With a production of 6.48 kg / m 2 the Cressonnette du Maroc variety has proven to be the most productive, a production difficult to obtain even from the classic lettuce varieties.

7. 3.65 kg / m ^ 2 is the absolute production obtained by the Briscia Rosa variety, practically the lowest production potential but compared to the productions presented by the specialized literature it is at an average level.

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