FERTILIZATION EFFECT CONCEARNING THE YIELD AND QUALITY INDICATORS FOR *LENS CULINARIS* L.

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Abstract: *Lentil is a leguminous plant that has been grown in the Mediterranean region since ancient times. Seeds are reported to have been found in Egyptian tombs of the 12th dynasty (2400 B.C.). As a major importance, lentils grains represent a source of energy and nutrients heaving in their composition many compounds bio-benefical for human body. Lentils grains have a high quality protein content and healthy carbohydrates (starch). Lentils also contain a lot of ballast material (fiber), which helps digestion. Lentil flour can be used in combination (10-20%) with wheat flour in bread-making. Used as a green mass, lentils are a very valuable animal feed, is also a very valuable plant for soil ameliorative, being a good run for almost all plants, but in different way for winter wheat. Straw and chaff after threshing are deriving a valuable forage with a protein content (14-15%), carbohydrates (35%), the remainder being made up of carbohydrates, fiber, fat, etc. Researchs were focused on three varieties of lentil, from two countries: Romanian varieties Oana, USAMVBT population and Laura variety, Spanish origin. In the experimental field of Banat's University of Agricultural Sciences and Veterinary Medicine the experiments were conducted on a cambic chernozem soil type, wet phreatic (weak gleyed soil) low decarbonated, on the loess deposits-powder, loam – clay. From the varieties of lentils, Oana noted, with the average yield on the three levels of fertilization about 2030 kg/ha. With a similar yield came the variety Laura (Spanish origin), the difference between varieties being meaningless. The lowest yield was recorded in variety USAMVBT population, just 1168 kg/ ha. From the fertilizing levels were noted, with practically equal yields, the following:* $N_{20}P_{60}K_{60}$ *and* $N_{40}P_{60}K_{60}$

Key words: *lentils varietis, fertilization levels.*

INTRODUCTION

As a major importance, lentils grains represent a source of energy and nutrients heaving in their composition many compounds bio-benefical for human body. Lentils grains have a high quality protein content and healthy carbohydrates (starch). Lentils also contain a lot of ballast material (fiber), which helps digestion. Lentil flour can be used in combination (10-20%) with wheat flour in bread-making.

The aim of this research is to reveal the effect of fertilization on yield and quality indices for the zonal variety Oana, Laura variety (Spanish origin) and - USAMVBT population, to expand them in culture and to obtain cost-effective crops.

The researchs aims to improve cultivation technology in order to extend cultivation of lentil crop in the area of Didactic Station from Banat's University of Agricultural Sciences and Veterinary Medicine, Timisoara, located in the Banato-Crisan Plain, Timis-Plain subunit, interfluve Berecsău Bega-Timis.

In the area where research was conducted, lentils receive favorable climatic conditions, so the studied varieties have the ample opportunity to manifest their productive capacity.

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MATERIAL AND METHOD

The research was done in a two factor - experiment, with three repcilcations, in which **factor A** was the variety, with three graduations $\mathbf{a_1}$ - Oana Romanian variety, $\mathbf{a_2}$ - variety Laura of Spainish origin, $\mathbf{a_3}$ - USAMVBT population and **factor B** - the level of fertilization, three graduations: $\mathbf{b_1}$ - $\mathbf{N_0P_{60}K_{60}}$, $\mathbf{b_2}$ - $\mathbf{N_{20}P_{60}K_{60}}$, $\mathbf{b_3}$ - $\mathbf{N_{40}P_{60}K_{60}}$. The precursory plant was winter wheat.

During vegetation stage the biometric measurements were made on: plant height, number of ramifications / plant, number of pods / plant, number of grains / pod.

The results calculation was done at 13% humidity, according to the method of field experiences settlement and biometric measurements results of were performed by statistical analysis of the sequence variations.

RESULTS AND DISCUSSIONS

Table 1 show the results of the yield.

In the studied area, the yield results obtained ranged from 1118 kg / ha recorded in the variant population USAMVBT $\mathbf{N_0P_{60}K_{60}}$ and 2136 kg / ha in variant $\mathbf{N_{40}P_{60}K_{60}}$, Oana variety.

On average on the three levels of fertilization, the crop was by 16% higher in variety Oana (2030 kg / ha) compared to the variety Laura (1715 kg / ha). The USAMVBT population, less adapted to the area, was below 48% twards Oana variety , respectively with 862 kg / ha.

Table 1

Lentil yield obtained by variety and level of fertilization

Variety	Fertilization level			Factor A averages			
	$N_0P_{60}K_{60}$	$N_{20}P_{60}K_{60}$	$N_{40}P_{60}K_{60}$	Yield kg/ha	%	Difference Kg/ha	Semnification
Oana	1951	2003	2136	2030	100	-	
Laura	1635	1778	1715	1709	84	321	xxx
De USAMVBT	1118	1216	1170	1168	58	862	xxx

DL5% =53 kg/ha, DL1% = 87 kg/ha, DL0,1% = 164 kg/ha

Factor B averages

Specification	$N_0P_{60}K_{60}$	$N_{20}P_{60}K_{60}$	$N_{40}P_{60}K_{60}$
Yield kg/ha	1568	1665	1674
%	100	106	107
Difference Kg/ha		97	106
Semnification			xx

DL5% = 41 kg/ha, DL1% = 68 kg/ha, DL0,1% = 108 kg/ha

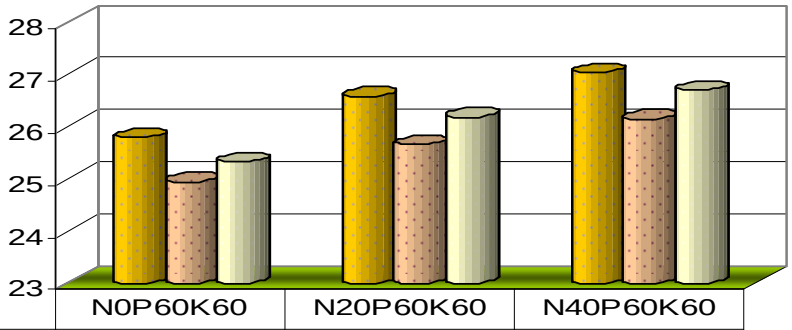
Figure 1 is shown the evolution of 1000 kernel, which shows that the highest value was recorded in variety Oana in $\mathbf{N_{40}P_{60}K_{60}}$ variant.

CONCLUSIONS

1. Among the studied varietis , Oana was noted with the yield average under studied fertilization levels exceeded 2000 kg / ha.

2. Laura, Spanish variety, can be taken into consideration in order to diversify the structure of varieties.

3. Nitrogen fertilizer applied at doses of $\mathbf{N_{20}}$ and $\mathbf{N_{40}}$, on the $\mathbf{P_{60}K_{60}}$ fund were poorly capitalized by lentils, the explication came due to the good potential of soil that where the experiments were made and also for the fact that the requirements of this species for this element are reduced.



	N0P60K60	N20P60K60	N40P60K60
Oana	25,78	26,57	27,03
Laura	24,93	25,64	26,13
De USAMVBT	25,31	26,17	26,68