

# RESEARCH ON THE OPTIMAL FERTILIZATION SYSTEM FOR THE LUCERNE CULTURE IN MIXTURE WITH PERENNIAL FOREST GRAMINES IN THE OLTENIEI AREA

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**KEYWORDS:** *fertilization, feed, production, lucerne*

## ABSTRACT

Organic and mineral fertilization of temporary grasslands is one of the essential measures for obtaining increased feed and lucerne crops. (Bărbulescu . C. s.a. 1972; 1991; Moga I. s.a. 1993; Cotigă C, 2010; 2012)

By applying 30 t/ha of manure, in conjunction with a modest dose of nitrogen, in the temporary grasslands, the botanical composition is maintained in a good balance.

## INTRODUCTION

The harvest increases obtained by cultivating the lucerne in mixture with perennial forage grasses are over 30% compared to the lucerne sown in pure culture. Also, the feed obtained from the mixed culture is more chemically balanced. Particular attention should be paid to the proportion of components of the species that are part of the mixture.

## MATERIAL AND METHOD

The experience was located on from S.C.D.A. Șimnic Iuvosol in 2017 and following several years of research, using the method of placement in subdivided plots.

The biological material used consisted of 30% lucerne and 70% perennial forage grasses.

## RESULTS AND DISCUSSIONS

If we analyze the data obtained and presented in table 1 regarding the effect of the organic fertilizer on the production of dry matter in the lucerne culture mixed with perennial grasses, it is found that, between the two studied variants, the difference in harvest is distinctly significant.

*Table 1*

The effect of organic fertilizer on the production of dry matter in lucerne culture in mixture with perennial grasses on luvosol from S.C.D.A. Șimnic (2018)

OPTIONS	ABSOLUTE PRODUCTION d.s. t/ha	RELATIVE PRODUCTION %	THE DIFFERENCE	THE MEANING
No manure	6,6	100	mt	-
Manure 30t/ha	8,2	126	1,6	**

DL 5% 0,7% t/ha d.s.  
 DL 1% 1,5t/ha d.s.  
 DL 0,1% 2,3t/ha d.s.

The increase brought by the organic fertilizer compared to the considered control was 1.6t/ha d.s.

If we refer to the effect of phosphorus fertilizer (Table 2.)

*Table 2*

The effect of phosphorus and potassium fertilization on the production of dry matter in lucerne culture in mixture with perennial grasses, on S.C.D.A. Șimnic luvosol (2018).

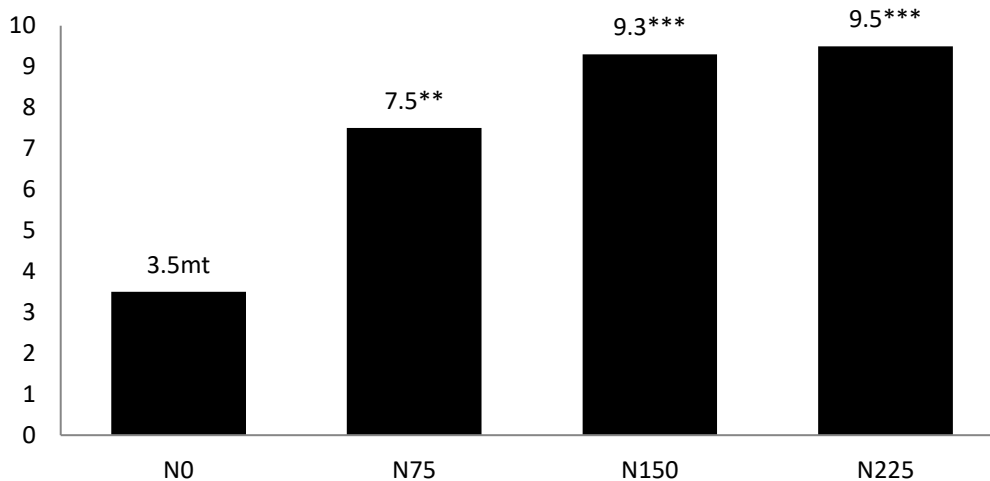
Doses of phosphorus and potassium	ABSOLUTE PRODUCTION d.s.t/ha	RELATIVE PRODUCTION %	THE DIFFERENCE	THE MEANING
P <sub>0</sub>	5,2	100	mt	-
P <sub>50</sub>	7,5	144	2,3	***
P <sub>100</sub>	8,0	154	2,8	***
P <sub>100</sub> K <sub>50</sub>	8,3	160	3,1	***

DL 5% 0,5 t/ha d.s.  
 DL 1% 1,1t/ha d.s.  
 DL 0,1% 1,7/ha d.s.

We can notice, that its presence with the dose of P<sub>50</sub> brought an increase of 2.3t / ha d.s., very significant compared to the control variant. This aspect causes us to consider that the luvosol from S.C.D.A. Șimnic is poor in this macro element and therefore his intervention is timely.

Figure 1

**Regarding the effect of nitrogen on the forage harvest**



The increases were significant, being between 7.5t / ha d.s. (at the dose of N<sub>75</sub>) respectively 9.5t / ha d.s. (the dose of N<sub>225</sub>).

### CONCLUSIONS

1. Organo-mineral fertilization of the temporary meadows in the Oltenia area is essential in order to obtain a well balanced crop chemically and botanically.
2. Due to the application of organic fertilizer, in the temporary meadows, the percentage of legumes is maintained at a significant level, as such the quality of the feed is better.
3. Depending on the rainfall regime in the experimentation area and the presence of nitrogen, it makes its presence felt leading to a good distribution of the crop on the seams.

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