

ORGANIC AND MINERAL FERTILIZATION OF TEMPORARY GRASLANDS – ECOLOGICAL MEASURE AND THE EFFICIENCY ON ENHANCING FODDER PRODUCTION SCENARIO IN THE HILLS` AREA OF OLTENIA REGION

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Keyword: fertilization, manure, temporary grassland, production, dried substance.

ABSTRACT

It is commonly known manure is a complex organic fertilizer. Manure contributes to the fertility of the soil by adding organic matter and nutrients such as: nitrogen or phosphorus which can be found both as an organic and mineral matter in equal parts and potassium which can be found especially in soluble form in water (Gooke, 1971, quoted by Moga. I, and colab. 1996).

INTRODUCTION

Alfalfa (*Medicago sativa*) cultivated in mixture with perennial graminaceae leads to a better use of manure than just cultivating alfalfa in pure culture.

As regards temporary grass land this paper concentrates not only on fertilizers dosage but also on its application in this case – manure can be applied to the land surface or under it and which are the implications of this process.

MATERIAL AND METHOD

Experiments were carried out at Simnic SCDA during 2013 – 2015. The manure amounts levels were the following: $a_1=20$ t/ha, $a_2=30$ t/ha, $a_3= 60$ t/ha, $a_4= 70$ t/ha.

The plants used for carrying out this experiment were the following: *Medicago sativa* 40%, *Dactylis glomerata* 30% + *Festuca arundinacea* 30%.

Another important aspect was represented by the way of application of organic fertilizer to the land surface or under. The aim was to evaluate the effect of the fertilizer upon soil decompaction.

RESULTS AND FURTHER DISCUSSIONS

According to the results obtained and presented in Table 1 upon the effect of organic fertilizer on the production of dried substance on temporary grasslands at SCDA Simnic, the following aspects can be mentioned:

Table 1

The effect of manure application on dried substance on temporary grassland of Luvisol at SCDA, Simnic (three years` time)

Manure	Dry matter	Relative	Difference	Significance
0	4,2	100	Mt	-
30	7,8	186	3,6	***
60	8,4	200	4,3	***
90	8,7	207	4,5	***

DL 5% 1,2 t/ha

DL 1% 2,5 t/ha

DL 0,1% 3,4 t/ha

In accordance with the quantity of manure the level of crop ranged from 4,2 t/ha (without being applied organic fertiliser) to 8,7 t/ha (with applied organic fertiliser).

An important increase of the crop was obtained by applying a quantity of 60 t/ha of manure and the 90 t/ha; the findings provide the following values of row range from 4,2 t/ha to 4,7 t/ha which are bigger than the previous ones. The impact of manure on soil is better highlighted by the data presented in Figure 1.

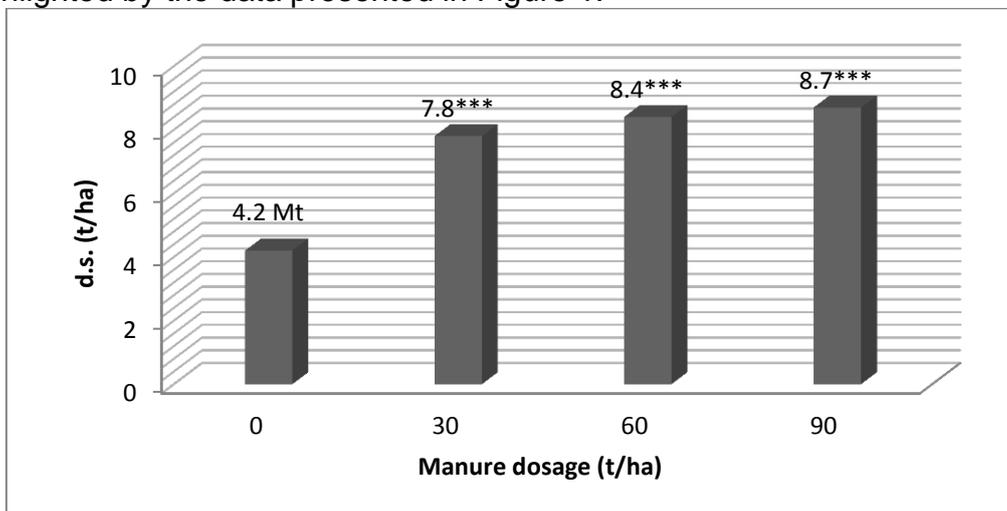


Figure 1. The influence of manure dosage on land productivity at SCDA, Simnic (three years`time)

There can be easily noticed that the fertilizer values of 30-60-90 are being more efficient. As regards the effect of manure that can be applied to temporary grasslands (table 2) the following data were collected.

Table 2

The effect of manure application on dried substance on temporary grassland of luvisol at SCDA, Simnic (three years`time)

Manure Dosage t/ha	Manure Application			
	Under land surface		Land surface fraction procedure	
	d.s. t/ha	%	d.s. t/ha	%
0	4,5	100	4,7	100
30	7,9	176	8,2	174
60	8,5	189	8,7	185
90	8,8	196	8,9	189

According to the values mentioned above related to manure applied under the soil surface the crop production ranger from 4,5 t/ha (without manure application) to 8,8 t/ha (90 t/ha manure being applied at).

According to the values mentioned above related to the manure fractionation (on the soil surface) the crop production ranger from 4,7 t/ha (without manure application) to 8,9 t/ha when (90 t/ha manure was applied at).

The effects of manure applications on temporary grasslands can be seen in Figure 2 which shows decreasing rates of crop production.

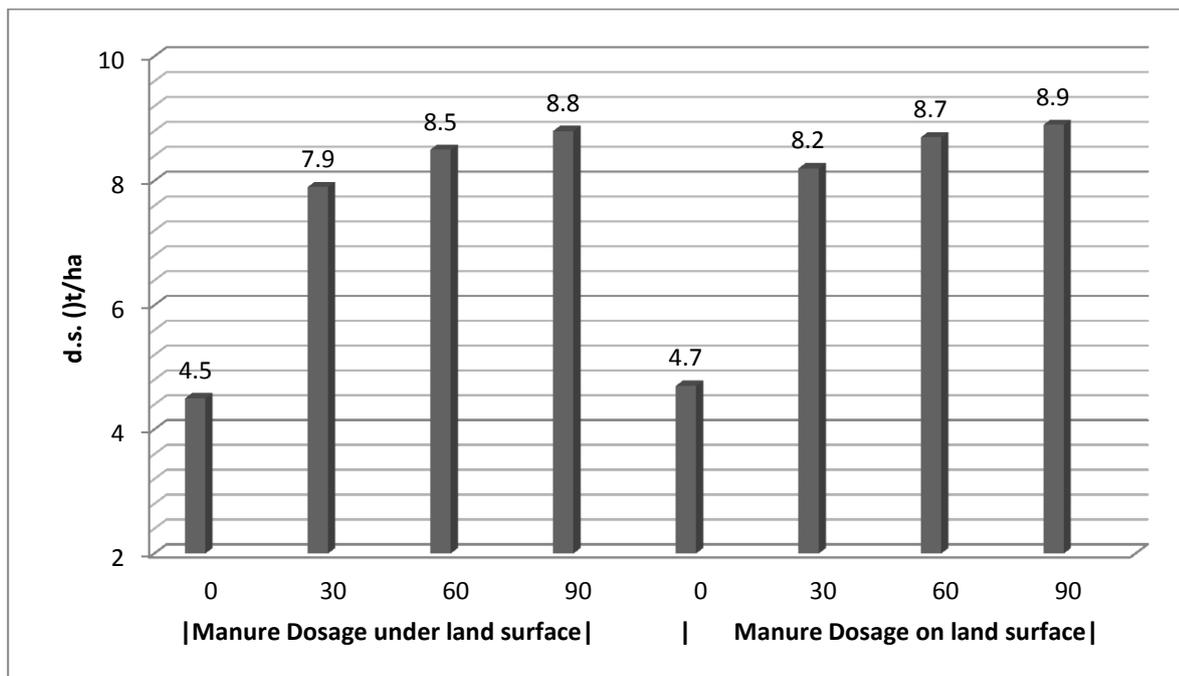


Figure 2. The effect of manure application on land productivity at SCDA, Simnic (three years`time)

We conclude that regardless the way the manure is being applied (on the soil surface or under it) the effect is similar.

CONCLUSIONS

According to the results presented above related to organic fertilization of temporary grasslands in the hills`area of Oltenia Region we conclude the following:

- manure fertilization for temporary grasslands represents an important measure for improving crop production
- an increasing crop production of over 8,0 t/ha can be obtained only by applying 30 t/ha manure
- regardless the way of manure application (on the soil surface, under soil surface or using a fractionation procedure) are being relatively low.

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