INFLUENCE OF MANURE ON PRODUCTIVITY AND QUALITY OF A MEADOW OF *FESTUCA RUBRA* L.

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Abstract

Researchers current concerns are to maintain the high floristic biodiversity, enabling sustainable development of natural grasslands in mountain areas.

Large surfaces of the Apuseni Mountains are fertilized with organic fertilization (these is the only way of fertilization used by grasslands owners), fact which causes probably the high phytodiversity specific for these area. Grassland management is the one who creates and maintains a high phytodiversity, being able also to reduce it drastically in a short time. This involves research at various levels of intensification in order to determine how productivity and phytodiversity of grassland evolves over time. The first studies conducted in the Apuseni Mountains were aimed to increase production and fodder quality through various technological methods (fertilization with organic fertilizers,amendment, overseeding etc.), without taking into account the specific biodiversity of phytocenosis. Currently the problem is changing radically and in all research actions undertaken is not overlooked the environmental dimension. Through this experience we plan to examine how different doses of organic fertilizers influencing productivity and fitodiversitatea of mountain meadows.

Keywords meadow, manure, productivity, *Festuca rubra*

INTRODUCTION

Semi-natural grasslands have a variable floristic structure determined by a complex of factors such as altitude, rainfall, soil and applied management. Perimeter of Garda de Sus includes large areas of grassland semi invaluable in maintaining the cultural landscape which is a topical issue. Phytodiversity meadows is high but harvest and quality are not satisfactory. Increasing these parameters is through interventions in the system, such as organic fertilization. Fertilization is important because it can produce large changes in the grassy carpet, like extinction of species. Current concerns are to increase pasture productivity without causing biodiversity change. Through this experience we propose to find optimal doses of fertilizer to increase productivity and

maintain the biodiversity of grasslands.

The objective of our research is to observe the effect of manure on grassland productivity of Festuca rubra three years (2005-2007).

MATERIAL AND METHOD

Our research studies have been conducted in Ghetari village at an altitude of 1100 m, on a surface slope of 2%, with an exhibition northern. Experience placed in randomized blocks with four variants in four repetitions, the experimental plot area of 10 m2. Type of soil was placed experience is *preluvosol rodic* and type of vegetation is *Festuca rubra*. These experiences started in 2001, and the paper will be presented experimental data obtained in 2005-2007. Experimental variants are as follows: V_1-natural grassland, V_2-10 t/ha manure, V_3-20 t/ha manure şi V_4-30 t/ha manure.

The materials used were organic fertilizers: manure from cattle and horses, unfermented.

Waste content in elements range from 0.4 to 0.55 nitrogen, 0.39 to 0.6 phosphorus and 0.35 to 0.5 potassium. It was applied every year in early spring, usually around the 15th of April. Data were processed using analysis of variance and Duncan test. Determining floristic composition was achieved by planimetric method and to analyze floristic composition Shannon diversity index was calculated.

RESULTS AND DISCUSSION

Organic fertilizers exert ameliorative effects on physical, chemical and biological soil properties, their use leading to significant increases harvest (Rotar, 2003). In our experience was followed effect of three doses of manure on crop DM. Since the first year of study, pasture productivity is positively influenced by inputs studied technology, increasing the amount of dry matter after fertilization with organic fertilizer in all experimental variants. Harvest largest increase recorded in the variant fertilized with 30 t/ha manure, where they get a positive difference in yield very significant compared to the control (Fig. 1).

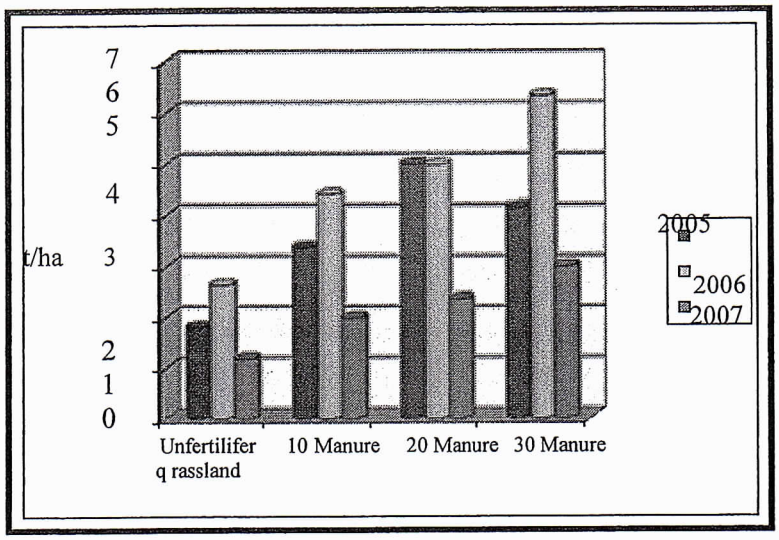

Fig.1 Harvest progress in experimental years

SU harvest is done primarily attributable residual effect of manure applied the previous year and secondly, on the applied current year (ROTAR et al., 2003, MOREA, 2008).

Effect of manure on natural grasslands is maximum in the second year. JanKowski and collaborators (2003), an organic fertilizer experience shows that application of 10 t/ha manure brings the biggest harvest increases in the second and third, achieving an increase of 201,3%, averaged over three years, compared with witness.

In all experimental years there is a tendency to reduce harvest gains are obtained from 1 kg N applied as organic fertilizer quantity increases. ROTAR (2005) recommends to use low doses of manure on natural grasslands (20 t/ha manure) because large quantities without significant yield increases compared to small ones.

CONCLUSIONS

Organic fertilizer increases crop causes all fertilization graduations. Highest yield obtained is in the variant with 30 t/ha manure in 2006, and the lowest at graduation first fertilization in 2007.

The main factors influencing diversity index variation is the amount of manure and number of years of continuous fertilization.

REFERENCES

1. Jankowski K., R. Kolczarek and B. Kisielinska, 2003, Effect of non-conventional organic fertilisers on the meadows sward, Grassland Science in Europe, vol.8, pg. 186-188

2. Rotar I., 2003, The influence of fertilization on *Festuca rubra* pasture biodiversity, Buletinul USAMV, Seria Agricultură, Cluj-Napoca

3. Rotar I., F. Păcurar, GH. Groza, Roxana Vidican, N. SIMA, 2003, The influence of fertilization on *F. rubra* pasture biodiversity, Buletinul USAMV, seria Agricultura

4. Morea Adriana, 2008, Cercetări asupra evoluţiei biodiversităţii şi productivităţii în pajiştile de *Festuca rubra* din etajul boreal (cu privire specială asupra Munţilor Apuseni), teză de doctorat, Cluj-Napoca