The Improvement of Degraded Permanent Grasslands by Grazing in the NE Romania

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Introduction The permanent grasslands from northeastern Romania, situated on soils with low natural fertility, are weakly productive and have an improper flower composition. The resulted fodder is of low quality. The main means for improving these grasslands consist in adjusting soil fertility, changing the dominance in the vegetal canopy and their good management. The paper presents the influence of organic and mineral fertilization on degraded permanent grasslands of *Festuca valesiaca* L. from the Moldavian forest steppe, during 2006-2007.

Materials and methods In this paper, we present the results obtained in the trial set up at Ezareni, at the height of 107 m, on 18-20% slope. The year 2007 was very dry at Ezareni – Iasi, and the climatic conditions were unfavourable to the good development of vegetation on grasslands. The experimental factors were: V_1-Unfertilized control; V_2-10 t ha^{-1} cattle manure applied every year + N_{50} P_{36}; V_3-10 t ha^{-1} manure applied every year + N_{50} + $_{50}$ P_{72}; V_4-20 t ha^{-1} cattle manure applied every 2 years + N_{50} P_{36}; V_5-20 t ha^{-1} cattle manure applied every 3 years + N_{50} + $_{50}$ P_{72}; V_6-30 t ha^{-1} cattle manure applied every 3 years + N_{50} P_{36}; V_7-30 t ha^{-1} cattle manure applied every 3 years + N_{50} + $_{50}$ P_{72}; V_8-40 t ha^{-1} cattle manure applied every 3 years + N_{50} P_{36}; V_9-40 t ha^{-1} cattle manure applied every 3 years + N_{50} + $_{50}$ P_{72}. The harvesting was done at the period of ear formation in dominant grasses, and yields were expressed in dry matter (DM). The changes found in the structure of canopy were determined through the gravimetrical and planimetrical methods.

Results Data presented in Table 1 showed that fertilization had a positive influence on yield, according to applied rates and combinations. The mean yields were between 2.16 and 2.34 t/ha DM, in variants fertilized with 10 t ha^{-1} cattle manure, applied every year on the background of N_{50} P_{36} or N_{50} + $_{50}$ P_{72}, between 2.24 and 2.48 t/ha DM in variants fertilized with 20 t ha^{-1} cattle manure, applied every year on the background of N_{50} P_{36} or N_{50} + $_{50}$ P_{72}, 2.52-2.68 t/ha DM in variants fertilized with 30 t ha^{-1} cattle manure, applied every year on the background of N_{50} P_{36} or N_{50} + $_{50}$ P_{72}, and between 2.78 and 3.42 t/ha DM in variants fertilized with 40 t ha^{-1} cattle manure, applied every year on the background of N_{50} P_{36} or N_{50} + $_{50}$ P_{72}. The highest yields were obtained in the variants at which 10, 20, 30, 40 t/ha of manure were applied every year, every 2 or 3 years, together with N_{50} + $_{50}$ P_{72}. The fertilization has led to the improvement of the botanical structure, by increasing the participation percentage of legumes, at the same variants of fertilization, and slightly diminishing the percentage of other plants (Figure 1).

Table 1 *Influence of fertilization on DM yield (t ha^{-1})*

Fertilization variant	Production of DM yield (t ha^{-1}) 2006-2007
V_1	1.45
V_2	2.16*
V_3	2.34**
V_4	2.24**
V_5	2.48***
V_6	2.52***
V_7	2.68***
V_8	2.78***
V_9	3.42***

* = $P \leq 0.05$; ** = $P \leq 0.01$; *** = $P \leq 0.001$;

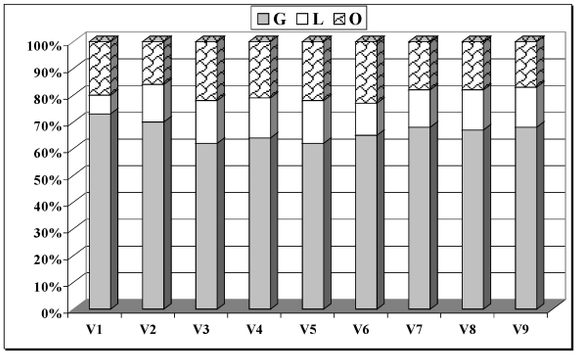

Figure 1 *Influence of fertilization on canopy structure (%).*

Conclusions The permanent grasslands of *Festuca valesiaca* L. from Romania react very well to the fertilization, which may be an important measure of recovering permanent grasslands, and promoting, at the same time, the concept of organic agriculture. The best results of production, but also of improving the flower structure were obtained in variants where different rates of manure were applied every year, every 2 or 3 years, together with maximum nitrogen rates.

References

Cardaşol V. (1994)-Fertilisation organique des prairies permanentes roumaines; synth. des résultats d'essais multilocaux et de longue durée. *Revue Fourrages, 139*, Versailles, France.

Samuil C., Vintu V., Iacob T., (2007)-Influence of mineral and organic fertilization on improving the productivity of permanent grasslands from forest steppe in the northeastern part of Romania. *14st Symposium of the European Grassland Federation*, Gent, Belgium.