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STUDIUL AGROPRODUCTIV AL PAJIŞTILOR PERMANENTE DIN BAZINUL SUPERIOR AL RÂULUI SLĂNIC-BUZĂU

THE AGROPRODUCTIVE STUDY OF THE PERMANENT MEADOWS FROM THE SUPERIOR BASIN OF SLĂNIC-BUZĂU RIVER

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SUMMARY

Permanent meadows represent an important source of forages due to the cultivated surfaces and the high yields of good quality obtained from them. For a superior valuation of the possibilities existing in this domain it is very important to know the actual potential of the permanent meadows.

By a rational use and an adequate management of the natural factors the yields of the permanent meadows may be significantly increased. To achieve this objective the meadows should be tended and improved as any other cultural plants, the expenses being covered in the end with high efficiency.

It is known the fact that the productivity of the permanent meadows or their capacity to produce biomass is determined by various abiotic, biotic and antropic factors. Among these the most important are the floristic composition, stationary conditions, the way the meadows are tended, used and managed.

Fertilization is one of the main means by which we can increase the yield of the permanent meadows with a valuable grassy cover and a high degree of vegetative covering. The major purpose of the additional sowing is to improve the floristic composition and to remake the grassy cover when it presents unfilled with grass spaces. We can improve large surfaces of permanent meadows from our country by additional sowing these obtaining high yields and changing the floristic composition according to our needs. The success of the additional sowings is conditioned by the use of the plant species adapted to the ecological conditions, the

improvement of the nutritive regime of the plants by a differentiated application of the fertilizers and by a rational use of the meadows.

The present paper is focused on the agroproductive study of the permanent meadows from the superior basin of Slănic - Buzău river, in actual conditions of tending and use, under the influence of fertilization with mineral and organic fertilizers and additional sowing with a mixture of graminaceae and perennial leguminous plants associated with fertilization on the yield, forage quality, evolution of the vegetative cover and soil fertility on two types of permanet meadows from the same region.

The researches carried out in the preiod 2001-2004 had in view the following objectives: the vegetation study of the permanent meadows from the hilly and mountain region of the superior hydrographic basin of Slănic Buzău river and their production in actual condition of tending and use, the influence of different doses of organic and mineral fertilizers on the yield of the permanent meadows from the hilly and mountain region; the evolution of the vegetative cover, the quality of the obtained forage, the modification of some agrochemical traits of the soil and of the microbial activity as a results of fertilization with mineral and organic fertilizers.

To fulfil these objectives, the pastoral fund from the hilly and mountain region of the hydrographic basin Slănic - Buzău was studied from all points of view (ecological conditions, floristic composition, maintenance condition, yield and its quality).

In two experiments it was analysed the influence of fertilization on a meadow of *Festuca valesiaca* Schleich. - *Brachypodium pinnatum* (L.) Beauv. from the hilly region and on a meadow of *Agrostis capillaris* L. – *Festuca rubra* L. from the mountain region and in other two experiments it was studied the influence of the additional sowing associated with fertilization on the types of meadows.

Due to its objectives fulfilled in field experiments, to the results and owing to its content, the theme of this doctorate thesis joins those important themes of actuality with a high applicability in improving the permanent meadows and in obtaining of such forages which allow to increase the number of farm animals by their rational feeding.

The paper was elaborated according to a judicious plan rationally structured in 10 chapters besides the introductions and conclusions.

The first four chapters have a general character and the last six chapters (V-X) deal with the study of the pastoral fund from the region and with aspects related to own experiments.

The results of the experiments were statistically worked out by variance analysis, and in interpreting them we kept in mind the significance of the differences among the variants under study.

The field trials and all the works and observations during the vegetative period were carried out respecting strictly the prescriptions of the experimental technique.

The first chapter deals with the importance spread and yield of the permanent meadows.

The second chapter of the thesis presents interesting results and conclusions regarding the fertilization of the permanent meadows, with reference to the influence of fertilization and additional sowing associated with fertilization on the yield. On the evolution of the vegetative cover, on the yield quality and on some traits of the soil. There are also explained some obtained in the majority of researches mentioned in the literature of speciality.

In the third chapter the natural conditions of the region were the experiments were carried out are characterized, with reference to the geographical location, geomorphology, hydrology, climate and soils. The evolution of the research years is presented and commented upon in tables and graphics.

The fourth chapter presents aspects related to the research objectives, the methodology of the experiments, the soils on which these experiments were carried out and some considerations regarding vinassa subproduct.

The fifth chapter deals with the study of the vegetations of the permanent meadows from the superior basin of Slănic - Buzău river, with several appreciations concerning the yield of the meadows from the region, and which allow us to conclude that the majority of the surfaces belong to the category of good and poor meadows.

The sixth chapter represents an important part in the content of the thesis in which are presented and comment upon the results of the field experiments carried out in the period 2002-2004. From the analysis of the average yields obtained on those two types of meadows one can notice that fertilization and additional sowing associated with fertilization represent some of the most important means to increase their productivity.

The level of the yields obtained by applying mineral and organic fertilizers or by additional sowing and fertilization varies significantly, depending on the nature and the degree of soil supply with nutritive elements, on the composition and structure of the vegetative cover, on the size of the doses and the combinations between the applied fertilizers, in the mixture used in additional sowing, on climatic conditions, on management etc.

The seventh chapter presents and deals with the changes which took place in the composition and in the structure of the vegetative cover during the experimental period.

On a meadow of *Festuca valesiaca* L. - *Brachypodium pinnatum* (L.) Beauv. at a fertilization with mineral fertilizers with nitrogen and vinassa in high doses, the changes from the vegetative cover were very significant, with an increase in percentage participation of graminaceae and a decrease in percentage participation of leguminouse plants and other plants from miscellaneous group. At fertilizations with nitrogen and vinassa, by the species from the grassy cover decreased, this

reduction being more evident at leguminous plants and the plants from miscellaneous group. The biodiversity of the grassy cover was significantly changed only at *Festuca valesiaca* Schleich. - *Brachypodium pinnatum* (L.) Beauv. meadow.

The eighth chapter presented and deals with the results of the chemical analysis of the forage. The analysis were made in a laboratory of speciality in the period 2002-2004. the results provied precise information regarding the forage quality. Thus, the chemical composition of the forage was influenced to the greatestextent by the fertilizers assortment and the applied dose, but at the same time it was also noticed the influence of the climatic conditions of each experimental year and of the number of the years when the fertilizers were applied.

The data regarding the forage content in protein, raw cellulose, potassium, phosphorus and calcium are very interesting and point out the way in witch the mineral and organic fertilizers influenced the forage quality. This also depended on the type of the meadow and on the mixture used in addditional sowing.

In the same chapter it is presented the influence of fertilization on the nutritive and energy value of the forage, on the export of the nutritive elements and on the condition of the nitrogen nutrition on the two types of the permanent meadows. The pertinent presentation of these aspects is also convincing by the great number of chemical analyses presented in the tables.

The ninth chapter deals with the influence of fertilization on some agrochemical indices of the soil and of the microbial activity, coming to interestingconclusion regarding the slightly humiferous influence of the manure and vinassa and to the fact that by fertilization with vinassa no major changes were recorded regarding the number and the spectrum of micromycetes and the significant presence of the cellulolitic and pectinolitic fungi is a positive aspect when using vinassa as a organic fertilizer.

The tenth chapter comprises aspects regarding the economic effiency of the tending and improving works carried uot on the two types of the permanent meadows.

The recorded data show that at *Festuca valesiaca* Schleich. – *Brachypodium pinnatum* (L.) Beauv. meadows when applying medium doses of fertilizers the best economic indices were obtained, but at *Agrostis capillaris* L. – *Festuca rubra* L. meadows the best economic indices were obtained at medium and high doses.

At the additional sowing of the meadows with mixtures of graminaceae and leguminous plants good economic indices were obtained, but when the additional sowing was accompanied by fertilization with mineral and organic fertilizers the best economic indices were obtained.

The interpretation of the results was done taking into account the significance of the limit differences at variant analysis, paying attention to the formulation of the interpretations to be as pertinent as possible.

The conclusions presented in the final part of the paper point out the results with theoretical value and a well-marked applicability in using some mineral and organic fertilizers on the meadows from the hydrographic basin of Slănic-Buzău river, without exaggerating the extrapolation of the results validity in other pedoclimatic zones and on other types of permanent meadows.