

## THE INFLUENCE OF ORGANIC FERTILIZATION ON AGRONOMIC FACTORS, ON FESTUCA RUBRA GRASSLANDS IN THE APUSENI MOUNTAINS

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### Abstract

For the semi-natural grasslands of the Apuseni Mountains, over the years, traditional management has been practiced by mowing and grazing, which in some areas is still practiced today. Agronomic factors are of particular importance in the growth and development of plants or even for their existence. Agronomic factors determine an indication of use (agronomic or utility value), being the tolerance for mechanical disturbances and fodder value. Knowing the tolerance of species to mechanical pressure (perturbations - tolerance to mowing, crushing and grazing) is essential in the elaboration of grassland management for certain ecosystems of grasslands with special conservation status and possibly others. The results come from an experiment with 4 treatments (V1 – control, V2 – 10 t/ha manure, V3 -20 t/ha manure and V4 - 30 t/ha manure).

**Keywords:** semi-natural grasslands, agronomic factors, *Festuca rubra*, grassland management

### INTRODUCTION

Agronomic factors are of particular importance in the growth and development of plants or even for their existence.

Agronomic factors determine an indication of how to use (agronomic or utility value). They can provide additional information, particularly useful in explaining the phenomena within the floristic cover. Often, the abundant presence of a species in a particular ecosystem or the existence of another species at a minimum can be explained by agronomic factors integrated into a specific grassland management. All these factors help to establish the agronomic value of grassland ecosystems and to develop maintenance and practical standards. Agronomic factors are represented by the tolerance to mechanical disturbance and the fodder value. Knowing the tolerance of species to mechanical pressure (perturbations - tolerance to mowing, crushing and grazing) is essential in the elaboration of grassland management for certain ecosystems of grasslands with special conservation status and much more (Păcurar et al., 2014).

## MATERIAL AND METHOD

Studies on the influence of organic fertilizers have been carried out on a long-term experience in The Apuseni Mountains with the intensity of organic fertilization as a factor.

The study had 4 experimental variants with 4 repetitions each. We used 3 levels of fertilization (V1 – control, V2 – 10 t/ha manure, V3 – 20 t/ha manure and V4 – 30 t/ha manure). The paper will present the results

obtained from a long-lasting experience for a period of 3 years (2015, 2016 and 2017).

Floristic studies were carried out using the Braun-Blanquet method, modified after Păcurar and Rotar, 2014. The processing of the data from the floristic studies and the interpretation of the results were elaborated with the help of the programs Excel and PC – ORD.

## RESULTS AND DISCUSSIONS

Agronomic factors are represented by the tolerance of species to grazing, crushing and fodder value (figure 1). According to the graphical representation resulting

from the ranking, we can observe that the exigencies of the species on grazing and crushing are inversely proportional to the fodder value.

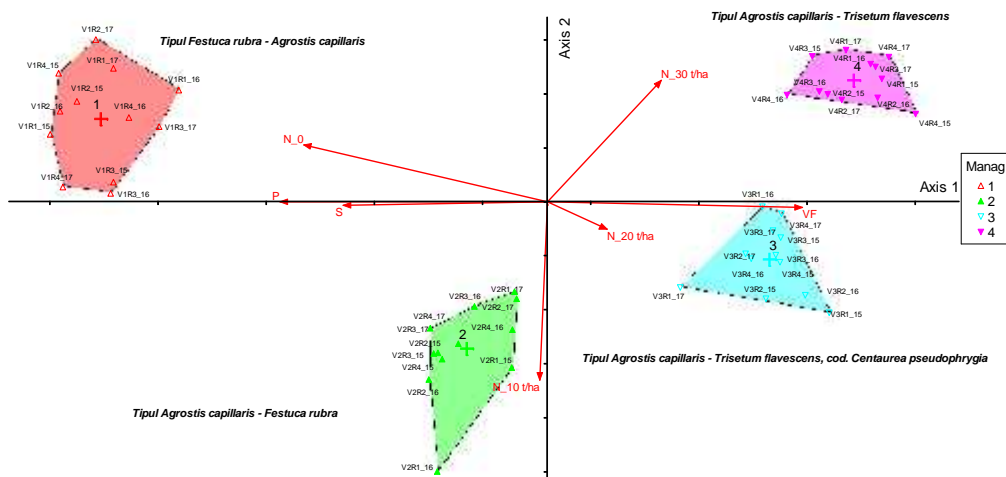


Fig. 1. The influence of organic fertilization upon floristic composition

Phytocenosis of the control (*Festuca rubra* - *Agrostis capillaris* type) shows an average tolerance to grazing (P – 5.29; figure 2), where he or she carries at least one occasionally spring or autumn grazing (semi-extensive grazing with tarpaulin system. The tolerance of other phytocoenoses in

this experience (V2, V3, V4) has a moderately tolerant character (P – 4.96; P – 4.61; P – 4.59; figure 2). Phytocenoses of grasslands type *Agrostis capillaris* – *Festuca rubra* (V2 – fertilized with 10 t/ha manure) shows an average squashed tolerance (figure 3).

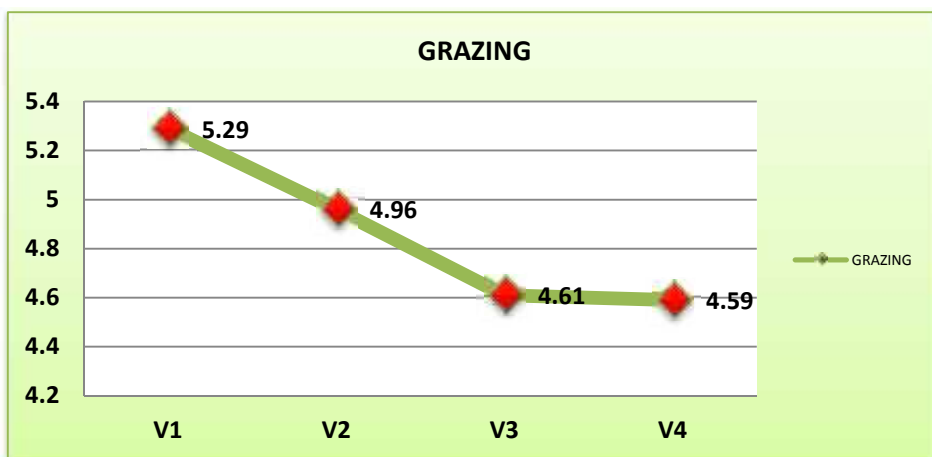


Fig. 2. Tolerance of phytocoenoses to grazing  
 V1 –control, V2 –10 t/ha manure, V3 –20 t/ha manure, V4 –30 t/ha manure

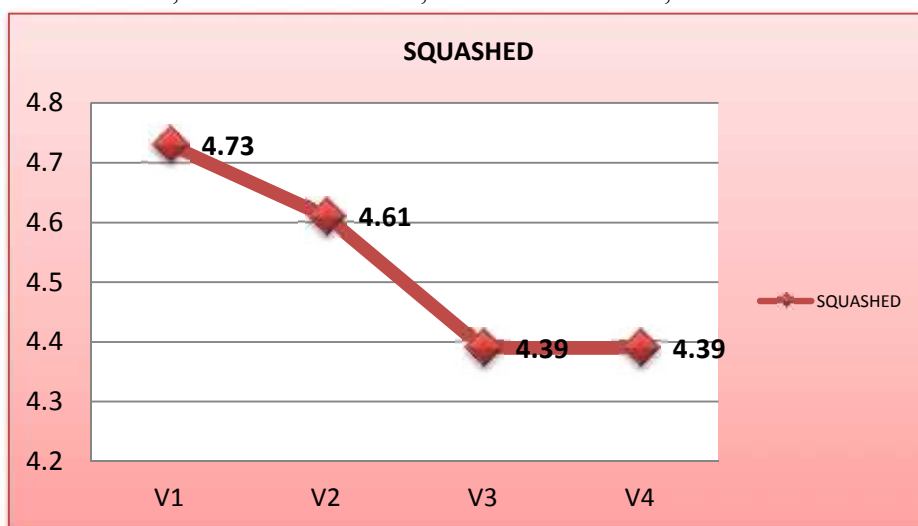


Fig. 3 Tolerance of phytocoenoses to squashed  
 V1 – control, V2 – 10 t/ha manure, V3 –20 t/ha manure, V4 – 30 t/ha manure

The analysis of agronomic factors is important in order to be able to understand how grassland and intensity of use are used, to identify plant species with negative effects on animals and grassland vegetation, to determine the agronomic value of phytocenosis and its classification in the class and category of grassland. The fodder value of studied

phytocoenoses increases from an average category (FV – 5.42; 0.61 – 0.8 UVM) predominant species with average fodder value. The UVM/ha capacity increases for the last phytocenosis, which was fertilized with 30 t/ha manure, to 0.8 – 1 UVM/ha (VF-6.1; figure 4).

This implies the grassland is dominated by species which have an average to high feed value.

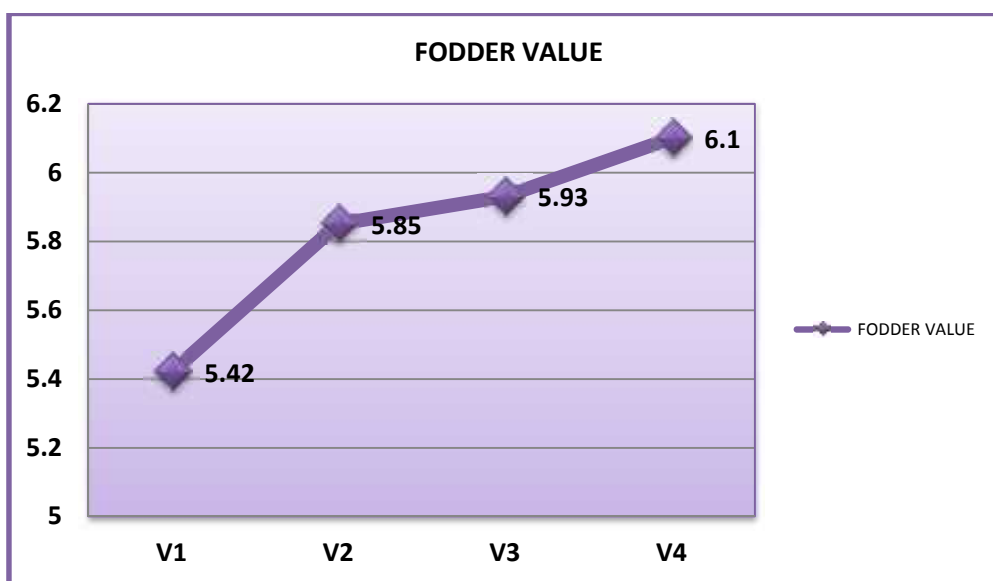


Fig. 4. Fodder values of phytocoenoses

**V1** – control, **V2** – 10 t/ha manure, **V3** -20 t/ha manure, **V4** - 30 t/ha manure

## CONCLUSIONS

As we intensified the phytocoenoses by applying organic inputs, we identified 4 types of different meadows.

Species requirements on grazing and crushing are inversely proportional to fodder value.

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