



UNIVERSITY OF LIFE SCIENCES "KING MIHAI I" FROM
TIMISOARA
"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH
IN APPLIED LIFE SCIENCES"



"Young people and multidisciplinary
research in applied life sciences"

16-17 November 2023

MONITORING OF GRASSLANDS IN SARAVALE COMMUNE

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Abstract: Permanent pastures play a crucial role in animal food supply, biodiversity conservation, and environmental protection. The study in Saravale Commune, Romania, aims to optimize pasture production and preserve biodiversity. Field sampling methods, including floristic surveys and Pasture Value Index (PVI) calculations, assess pasture quality. Four distinct grasslands in Saravale Commune host diverse plant species, with specific dominances in each. The study seeks to enhance nutritional value, improve animal production, and maintain a healthy ecological environment in Saravale Commune's grasslands.

• Introduction

The study underscores the global importance of pastures and animal husbandry, with six out of seven ancient civilizations relying on grazing (Samfira and Moisuc, 2007). Permanent pastures, composed mainly of leguminous and dominant grass species, cover 31% of Romania's agricultural land, providing fodder for a significant portion of the bovine and ovine populations. Pastures serve vital economic, ecological, and landscape functions, contributing to activities such as pasture utilization, biodiversity conservation, and soil protection against erosion (Stroia, 2007; Stroia, 2013). These ecosystems are crucial for cattle nutrition, and efforts towards more sustainable agricultural systems aim to enhance their role in animal production systems (Carrère *et al.*, 2020).

The main objective of this study is to improve the nutritional value of the grasslands in the Saravale Commune. By increasing vegetation production, the aim is to boost animal yields and, consequently, contribute to the well-being of their owners. The study involves identifying, establishing, and characterizing the existing vegetation, with a focus on ecologically rational and controlled exploitation of these grasslands. It is anticipated that this approach will lead to an increase in biodiversity of the plant cover and the protection and enhancement of soil quality. The organization of rational grazing is oriented towards creating a pleasant image of the grasslands, maintaining a neat appearance. Through the conservation of biodiversity, the plant cover will provide a colorful and enchanting view during the summer period.

• Material and method

Saravale is a locality in the Timiș County, Banat, Romania situated at an altitude ranging from 83 to 87 meters. Saravale's geological makeup includes limestones, crystalline schists, and volcanic rocks, forming a foundation covered by sedimentary rocks. The area experiences a temperate-continental climate, fostering steppe-like vegetation.

Floristic composition in Saravale's pastures is determined through geobotanical methods, employing phytosociological study techniques and Braun-Blanquet scale assessments, with the resulting pastoral value (PV) offering insights into pasture quality based on forage and ecological factors.

For data interpretation, we also utilized the functional typology of perennial forage grasses proposed by Cruz *et al.* (2010).

• Results and discussions

Grassland I exhibits a diverse composition, with *Agropyron repens* as the dominant species, constituting 33.42% of the vegetation. Legumes, notably *Medicago lupulina*, contribute 20.05% to the total cover, with half of them possessing high forage value. The presence of other botanical families, including some toxic and harmful species, amounts to 11.19%. Despite the need for maintenance to address unwanted species, the pasture holds a good pastoral value of 51.69%.

Grassland II is characterized by a majority of eurioic species (13 out of 19), dominated by *Vulpia myuros*, constituting 29.87% of the total vegetation. With a predominance of early and variably productive species, the pasture shows a very low agricultural potential, with only 14.15% coverage by a late and highly productive species (*Cynodon dactylon*). Legumes are absent, and other plant families occupy 28.10% of the area, including 3.46% harmful species. This composition results in a weak pastoral value (PV=7.55) for the pasture.

Grassland III is characterized by a majority of eurioic species (24 out of 38), with notable representation of species preferring neutral soils (14). Dominated by *Lolium perenne* at 33.23%, the pasture has good agronomic potential. While 45.31% is covered by productive and early species (*Lolium perenne*, *Poa pratensis*), *Festuca pseudovina* (2.72%) has low productivity, and *Bromus hordeaceus*, *Hordeum murinum* (14.51%) show variable productivity. Legumes cover 1.80%, mostly with very good forage value, except for one without forage value (*Ononis spinosa*). Other plant families constitute 24.56%, with 13.70% toxic (*Euphorbia cyparissias*) and harmful species, indicating the need for maintenance. The pasture's species composition gives it a good pastoral value (PV=56.28).

Grassland IV is dominated by eurioic species (16 out of 23), with seven favoring neutral soils. The dominant species, *Agrostis stolonifera* (38.03%), is eurioic, except for *Bromus hordeaceus*. Agronomically, the pasture has a medium production potential, with almost half (48.33%) covered by productive and late species. Legumes are well-represented (31.70%), most having very good or good forage value. Other plant families constitute 16.18%, with 2.23% being harmful species. The overall species composition gives this pasture a moderate pastoral value (PV=49.69).

• Conclusions

- In summary, the study employed both classical and functional typology methods to assess vegetation in four grassland types in Saravale Commune.
- The first grassland exhibited good pastoral value and high productivity, particularly in the second vegetation period, driven by a majority of late productive grass species.
- The second grassland displayed poor pastoral value and low productivity due to the dominance of poorly productive grass species in both vegetation periods. In contrast, the third pasture demonstrated good pastoral value and productivity, especially in the first vegetation period, with a prevalence of high production potential species.
- The fourth grassland showed moderate pastoral value and productivity, with a low percentage of grasses in the first vegetation period and dominance of productive species in the second period.
- Across all pastures, a notable presence of toxic and harmful species indicated the need for control measures.