



**“Gheorghe Asachi” Technical University of Iasi, Romania**



---

## THE IMPACT OF ORGANIC AND MINERAL FERTILIZERS ON THE YIELD AND MINERALS CONTENTS OF *Fabaceae* FROM PERMANENT GRASSLAND

**Monica Hărmănescu<sup>1</sup>, Alexandru Moisuc<sup>1</sup>, Iosif Gergen<sup>2\*</sup>**

*Banat's University of Agricultural Sciences and Veterinary Medicine from Timisoara*

<sup>1</sup>*Faculty of Agriculture, Calea Aradului 119, Timișoara, Romania*

<sup>2</sup>*Faculty of Food Technology, Calea Aradului 119, Timișoara, Romania*

---

### Abstract

This paper presents original studies about the influence of mineral and/or organic fertilization on the minerals contents (P, Na, K, Ca, Mg, Fe, Mn, Zn, Cu, Ni and Pb) in leguminous plants from permanent grassland situated in a hill area of Banat County. Determination of minerals in grassland is very important both for the nutritional or toxic effects of these elements and their compounds, in the plants, animals and environment. Phosphorous was analyzed colorimetric and all the others metals have been analyzed using flame atomic absorption spectrometry (FAAS). The correlations between minerals contents and mineral or organic fertilizers are discussed in terms of multivariate analysis. Both fertilizers type influence the minerals contents of the leguminous plants, but in different manner. To obtain a good yield in leguminous plants with minimum influence in grassland environment, the mixed fertilizers is recommended. Principal Component and Classification Analysis can be an important tool for understanding the complex phenomena in biological systems, for the correlations between environment properties and human activities and also for environmental system modeling and optimization.

*Key words:* complex fertilizers, forage, leguminous, minerals, multivariate analysis

*Received: September, 2011; Revised final: January 2012; Accepted: January, 2012*

---

---

\* Author to whom all the correspondence should be addressed: E-mail: [igerger@yahoo.com](mailto:igerger@yahoo.com); Phone: 0040256277302; Fax: 0040256200296