

EVOLUTION AND RELATIONSHIP OF SOME MACRO MINERALS IN *Medicago sativa* L. PLANTS

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Abstract

Research conducted between 2013-2014, at Ezăreni Farm, Iași (47°05' - 47°10' north latitude and 27°28' - 27°33' east longitude) investigated at alfalfa (*Medicago sativa* L.), in the second, third, fourth and fifth vegetation year at the first cut, the influence of alfalfa plant phenophase at harvest on plant production of leaves, stems and whole plant (DM - dry matter) per hectare and leaves, stems and whole plant N (nitrogen), P (phosphorus), Ca (calcium) and Mg (magnesium) content. The experiment was laid by randomized block method in three replicates. Graduations of the studied factor were represented by the development phenophases:| early bud, mid bud, late bud; early bloom, 10% bloom and full bloom. The results showed that the total production of DM was between 3.20 Mg·ha⁻¹ (control variant) and 4.73 Mg·ha⁻¹ (full bloom variant). At a more detailed analysis of interdependencies between mineral elements studied were highlighted some important ideas. Thus, from mineral elements studied in whole plants, between Ca and P there is the slightest interdependent relationship. The relationships N-P/P-N ($R^2=0.739-0.841$) and N-Mg/Mg-N ($R^2=0.613-0.661$) are positive, and the relationship Mg-Ca/Ca-Mg ($R^2=0.576-0.653$) is negative. The results can be useful to improve alfalfa fertilization system and to balance the Ca/P ratio from alfalfa plants.

Key words: nitrogen, phosphorus, calcium, magnesium, quadratic regression