

ASSESSMENT OF OVERGRAZING ON DEGRADATION OF SLOPING SOIL

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INTRODUCTION

The Italian territory because of its morphological characteristics is vulnerable to erosion and hydrogeological disruption. Many factors contribute, interact and accelerate the degradation process of semi-arid grasslands. Due to these external agents of interference, the soil may undergo a degradation process which causes a regression from a high quality level to low quality one, reaching the total loss of the soil's biological potential and its resilience. Grazing intensity had an impact on ecosystem performance. Overgrazing particularly on sloping soil, can cause significant alterations in the chemical and biological soil characteristics, thus determining a greater vulnerability to soil erosion. A rational management of agro-silvo-pastoral systems is therefore important in hilly and mountainous lands, such as the Mediterranean areas.

OBJECTIVE

THE AIM OF THIS WORK WAS TO ASSESS THE INFLUENCE OF HORSE OVERGRAZING ON THE SOIL PROPERTIES WHICH, ON THE BASES OF ITS MORPHOLOGICAL AND CLIMATIC CHARACTERISTICS, COULD BE MORE SUBJECTED TO DEGRADATION PROCESSES

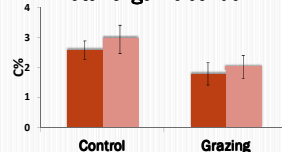
MATERIALS AND METHODS

- ❖ The research was carried out in central-west of Italy, sub-mountain environment, slope of 20%. A plot characterized by spontaneous grassing and never subjected to agronomic interventions was fenced.
- ❖ Top soil samples (0-15 cm), on three replicates, were collected:
 - on disturbed soil after one year of continuous grazing horse with high animal density (T1) and after one year of resting land (T2)
 - on a undisturbed plot nearby as control (T1, T2)
- ❖ chemical and biochemical parameters were carried out.

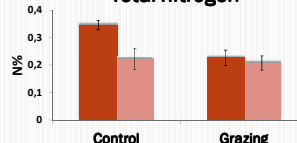


RESULTS

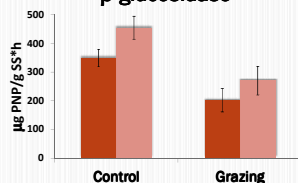
Total Organic carbon



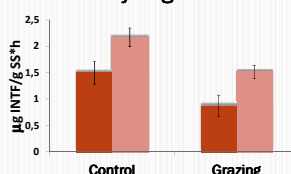
Total nitrogen



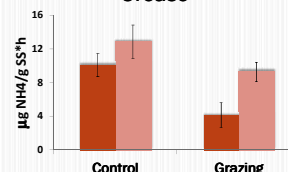
β -glucosidase



Dehydrogenase



Urease



■ T1
■ T2

CONCLUSIONS

The results showed that the soil damage is closely related to the content of organic matter and enzyme activities. The horse grazing was responsible of the loss of soil C and N content with respect to the control soil through compaction by animal trampling and plant coverage removal. Due to these degradative processes, a reduction in enzyme activities associated to the nutrient cycles were shown. After one year of resting land, an improvement of soil chemical and biochemical properties was observed, even though partially reaching the initial soil conditions.

A rational management adopting a grazing round to protect the soil characteristics, can solve some problems linked to the disturbance of overgrazing.

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