FOREST4EU

ITHub 5 - Agroforestry Systems

FOREST4EU partner: UNIFI
OG: PS.NEWTON
OG's country: Italy
Type of Innovation: Process

Evaluation of the impact of different grazing intensities of Maremma cattle on the components of the agroecosystem: soil, tree vegetation (structure, natural regeneration and biodiversity)

Introduction

Silvopastoralism is a widespread practice in Italy; it is often seen in the literature as a negative factor for regeneration, but the extent to which it is sustainable or not depends on the management objective and the grazing livestock load. In the course of the NEWTON project, four wooded areas were examined, specifically turkey oak stands of over 80 years of age with different livestock loads (expressed in UBA): calf grazing (2.02 UBA); high intensity cow grazing (0.50 UBA); low intensity cow grazing (0.32 UBA); ungrazed.
For the analysis of the vegetation, the analysed variables were the structure of the tree and shrub component, the quantity and quality of natural regeneration and the woody growth of the tree stand.

However, in the main stand there were differences which may also be due to silvicultural interventions and high animal loads from past management. Grazing affects the understorey and the regeneration by reducing its development as the intensity of grazing increases, the biodiversity of tree and shrub species is higher in the non-grazed area. Although very often grazing in the forest is a disturbance to its regeneration, it has a positive effect on the regeneration of herbaceous species and integrates many nutrient resources for animal feeding. If the load is appropriate to the area and characteristics, the soil does not become compacted and the manure has a positive effect on soil fertility and seed germinability.

In the four areas, soil quality was also characterised by applying certain chemical, physical and biological indicators. The values of biological quality, bulk density and soil permeability (Ksat) show that grazing and its intensity impact on the physical and biological quality of the soil with a trend related to animal load and grazing intensity. In general, 0.30 LU was found to be a compatible livestock load for the development of tree vegetation and soil conservation, but to be evaluated according to the forest management objective and the vegetative stage of the tree stand.

Lessons learned

The management objective in silvopastoral systems is key in defining the appropriate livestock load.

The coexistence of sustainable forest management and grazing in the forest is possible, but with a careful integrated planning that takes equal account of both agro-pastoral and silvicultural needs, especially in the final phase of forest regeneration.

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Further information

https://gonewton.it/

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