



Comparing pastoral and silvo-pastoral management on a local beef cattle breed: productivity, animal welfare and pasture depletion in a Mediterranean extensive farm

Introduction

The demonstrative trial conducted at Tenuta di Paganico increased knowledge of silvopastoral systems in the Mediterranean area in order to improve the management of silvopastoral farms.

The demonstration trial made it possible to confirm the positive role that trees play in improving microclimatic conditions and reducing heat stress in animals. In fact, cortisol levels measured in the hair, an index of chronic stress, remained lower in animals managed in the silvopastoral system, compared to subjects kept exclusively on pasture. The group of calves managed in the silvopastoral system did, however, experience a, albeit limited, reduction in the growth rates typical of the summer months. The group of calves managed in the silvopastoral system did, however, experience reduction, although limited, in the growth rates typical of the summer months.

These values therefore indicated that, during the spring period, it would be necessary to drastically limit the animals' use of the forest, both to exploit the thermoregulating power of the trees while limiting the possibility of animal movement, and to maximise the nutritional value of the fodder resources present in the pasture. This could make it possible to increase cattle growth, with positive repercussions both in economic terms and in terms of environmental impact in meat production.

Lastly, the limited presence of animals in the forest during the spring period could favour the growth and development of forage and shrub resources among the trees, which can then be exploited during the summer months, a period characterised by increasing drought.

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

Silvopastoral systems, being made up of different elements (forage, shrub, forest and animal components), require careful management in order to keep the system in balance, capable of perpetuating itself over time, maintaining all those ecosystem services that such a system is capable of providing. In order to enhance these management systems, the NEWTON Operations Group has suggested a number of strategies aimed at optimising production levels, maintaining high levels of animal welfare and the sustainability of the system itself, including: - monitoring and assessing the composition of the diet and its quality in the different seasons, for the various physiological phases of the animals and according to their management (silvopastoral or pastoral),

- rational use of grazing during the summer period by limiting access to the forest,
- use of the forest in the summer period to reduce heat stress and maintain stable growth rates.

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Further information

<https://gonewton.it/>



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