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**AGROECOLOGICAL AND AGROFORESTRY APPROACHES FOR A
SUSTAINABLE FUTURE**

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An assessment of agroforestry systems in Sicily: are the lessons from the past useful for the future?

Tommaso La Mantia^{a,b}, Maria Petrillo^a, Rafael da Silveira Bueno^{a,b,c}, Emilio Badalamenti^{a,b*}

^aDepartment of Agricultural, Food and Forest Sciences, University of Palermo, Viale delle Scienze, Ed.4, 90128 Palermo, Italy

^bNBFC - National Biodiversity Future Center, Palermo, Italy

^cDepartment of Earth and Sea Sciences, University of Palermo, Viale delle Scienze, 90128 Palermo, Italy

*Speaker

Emails: tommaso.lamantia@unipa.it, maria.petrillo@unipa.it, rafael.dasilveirabueno@unipa.it, emilio.badalamenti@unipa.it

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Agricultural and forestry systems in Sicily were multifunctional systems that had to guarantee numerous natural products and resources. Even systems that were thought to be distinctly orchards had characteristics of agroforestry systems, as did systems that were thought to be strictly forestry. Since the middle of the last century, there has been a gradual simplification and a general abandonment of these systems, leading to the elimination of the intermediate systems that were typically agroforestry systems. The transformation of agricultural systems into intensive farming systems has led to the establishment of monocultures and often single-variety systems that have lost this multifunctionality over time. In recent decades, however, the need to manage these systems in an increasingly sustainable way has led to a reappraisal of techniques used in the past. What has happened in forestry and pastoral systems is different, being these characterised by the general abandonment of cultivation, resulting in a loss of functionality. For example, pastures that are overgrown by shrubs offer fewer fodder resources, or forests that are no longer managed can be much more exposed to the risk of large wildfires. These processes resulted in the loss of biodiversity and functionality of the original systems. Today, agroforestry systems are attributed a key role in the preservation of many ecosystem values (landscape conservation, biodiversity protection, soil protection, wood production, etc.) and are undergoing a strong revaluation and increasing attention. In this context, a bibliographic analysis was first carried out on agricultural and forestry systems attributable to agroforestry systems in Sicily for their description and classification. Second, considering data available from Corine Land Cover datasets, spanning from 1990 to 2018, we tried

to assess land cover changes using QGIS tools. These changes represent an important aspect to take into account to assess the recent dynamics in agroforestry systems in Sicily. Based on this analysis, the main research questions are: Is it possible to propose changes that increase the sustainability of Sicilian agroforestry systems? Is it possible to introduce elements proper to agroforestry systems into current agricultural and forestry systems?

The historical analysis carried out has ascertained how numerous agroforestry systems were present in Sicily. Their widespread diffusion was also linked to the geomorphological characteristics of the island, which made it difficult to introduce innovations in the agricultural and forestry sectors. The typical Sicilian agroforestry systems were the agroforestry and agro-forestry-pastoral systems of traditional dry arboriculture (with carob, almond, olive, etc.), intermediate between true agricultural activities and extensive land use. Equally widespread were the agroforestry systems in natural and semi-natural formations (woods, maquis, garrigues) in which human activities, the use of forest products, and grazing were well established (silvopastoral systems).

Although some of these areas are, in fact, still used according to techniques that could be defined as silvopastoral, their current unsustainability is evident, both due to the recurring use of fires and overgrazing. Moreover, their protection, although in most cases falling within protected areas, does not ensure their sustainable management. On the contrary, the dogmatic application of regulations, instead of promoting their real functionality, prevents their sustainable management. Therefore, management proposals are put forward that guarantee their real protection and higher sustainability, which appear indispensable for landscape conservation and environmental and biodiversity protection, but also to safeguard particular activities that are difficult to replace with other economic activities. At the same time, the possibility of introducing elements proper to agroforestry systems into current agricultural and forestry systems will be considered.

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