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Adoption factors and structural characteristics of irrigated olive grove agroforestry systems in Central Tunisia

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ABSTRACT

Irrigated olive grove agroforestry systems in the Southern Mediterranean have rarely been studied. In the context of increased interest for agroecological approaches, this study questions why and how farmers undertake such associations, in the case of smallholder irrigated agriculture in Tunisia. The objectives were to characterize the physical structure of existing olive-summer vegetable associations and describe the rationales of farmers implementing them. Quantitative and qualitative approaches were used to collect data from 132 olive groves and 31 semi-directive interviews in the Merguellil plain, Central Tunisia. Dual crop input-intensive agroforestry systems were predominant, although agroforestry structures with a high species' diversity also existed. Adoption reasons and implementation of agroforestry systems varied. The latter were often perceived as an economically viable solution in a context of difficult access to productive resources. Particularly, limited and fragmented access to land or water was a strong driver of adoption, inducing contractual arrangements between farmers to share resources. Farmers implemented agroforestry systems mainly to maximize income, reduce production costs or reduce risks through a crop diversification strategy. Most characterized agroforestry olive-summer vegetable associations may fail to meet the principles of agroecology. Being already adopted by farmers, they may however serve as a base to conceive improved cropping systems.

KEYWORDS

North Africa, intercropping, Principal Component Analysis, typology, agroecology

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