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“Filling gaps and removing traps  
for sustainable resource management”

## Towards a Sustainable Management of Olive Trees' Orchards

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### Abstract

Advances in Science and especially molecular genetics were able to reconstruct the history and to determine the origin of many cultivated trees, such as the olive trees. In fact, it is from the wild olive that the cultivated olive trees *Olea Europaea* derive. However, while wild olive is found in forests, surrounded by many other trees and plants, the domesticated olive trees are mostly mono-cultivated in orchards around the Mediterranean basin. The olive trees monoculture led to the fields' natural vegetation destruction. In fact, entire hectares are completely devoted to the cultivation of olive trees in a monoculture way in Tunisia. In such system, no spontaneous plant could be tolerated because of water competition, except those growing on field borders. However, despite all efforts of trimming and plowing, olive orchards are often attacked by several specific pests, which are accentuated with the misuse of chemical insecticides. Because of the latter harmful effects on consumers and on the auxiliary fauna, several farmers have converted to organic methods. They therefore have resorted to the use of biological formulations and releasing parasitoids and predators in order to control pests. However, in the absence of plants diversification of the olive tree ecosystem, all these efforts may result in a failure, because as olive pests presence in the field is not that continuous, auxiliary fauna could not be easily maintained in the field. Thus, the need in the field, of associated plants acting as shelter for natural enemies, and increasing their environmental opportunities. In that purpose, introducing aromatic and medicinal plants in the olive trees orchards would be beneficial for both auxiliary arthropods and farmers which could gain additional income with the appropriate management of these plants inside their groves. In that context, experiments are being conducted in two organic olive orchards in which aromatic and medicinal plants, among other plants, were included. Farmers' testimonies\* and the impact of these plants on soil arthropods and auxiliary fauna presence and abundance in the field are being documented.

**Keywords:** Associated plants, biological control, olive orchards, pests-beneficial insect interactions