



Background information of the Pilot area

Nestled in the upper reaches of the Canyoles River watershed, the municipality of Font de la Figuera is situated at 588 meters above sea level in a Mediterranean dry climate (38.80°N, 0.88°W). With an average annual rainfall of only 432 mm and a high evapotranspiration rate of 1350 mm/year, this semi-arid region poses significant challenges to agricultural production due to climate change. While irrigation might seem to be a viable solution, the threats of salinization and groundwater depletion make it essential to explore alternative water management strategies. Techniques like applying chipped pruned branches and mulches have proven effective in enhancing soil water availability, reduce runoff and control soil erosion. The agricultural landscape features large properties for cereals and vineyards alongside smaller farms for olives and almonds. Many of these are managed by the technicians of the "La Viña" cooperative. Also, the Asensi family is part of the cooperative and contributes to local economic stability while serving as a learning hub for the member businesses. This strengthens the resilience against environmental challenges in this semi-arid landscape.

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REACT4MED

Land degradation such as soil erosion and desertification, along with climate change, are serious threats to agriculture in the Mediterranean. In order to restore degraded soils, we need solutions that pay off and which are good for the people and the environment.

The REACT4MED project aims to improve agricultural productivity, promote innovation, restore soils, and thus improve livelihoods in Mediterranean communities.

In eight pilot areas situated in Turkey, Morocco, Israel, Egypt, Cyprus, Greece, Spain, and Italy, large-scale land restoration actions are initiated and monitored. These actions include combating soil erosion through conservation agriculture, terracing, cover crops, reforestation, mulching and improved irrigation practices.

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Project duration:

May1 2022 to October 31 2025

Revitalizing Olive Orchards: The Impact of Chipped Pruned Branches in Mediterranean Groves Font de la Figuera, La Costera, València, Spain



PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA



Implementation story from the pilot area

In the sun-drenched fields of Font de la Figuera, the Asensi family is leading a sustainable agriculture revolution. Manuel and his son Manel manage 51 hectares of olive groves and 202 hectares of cereals and sunflowers, reviving formerly neglected land. Specializing in rainfed agriculture, they produce premium organic olive oil, having planted over 12,000 trees in 30 years. Inspired by Manuel's forward-thinking father, Gabriel, their innovative practices include mulching with chipped pruned branches, incorporating cover and catch crops and applying manure. They accomplished this through the careful integration of mechanization and continuous improvements on the farm, while maintaining a pesticide-free approach. Through this, Manuel and Manel have transformed the formerly degraded soils into a thriving ecosystem, showcasing their commitment to sustaining their heritage.

The role of the research institute in the Pilot Area

In Font de la Figuera and other rainfed agricultural areas in Eastern Spain, researchers from the Universitat de València (Soil Erosion and Degradation Research Group) investigate the benefits of the use of chipped pruned branches to reduce soil erosion. Together with Manuel Asensi, his family, and other farmers, they are looking into sustainable agriculture management by preserving traditional practices and combining them with innovative tools and strategies. They aim to maintain agriculture production, avoid land abandonment and the migration of the rural population.

Implementation requirements

The use of chipped pruned branches in rainfed olive plantations requires tractors equipped with chipping machinery. After pruning, the cut branches are collected in the spaces between the rows of olive trees, forming a line. The tractor then processes the branches, typically requiring two passes to effectively chop them.

This method is well-suited to rainfed agricultural systems, where the low tree density and open spaces between rows provide sufficient room for the machinery to operate. The resulting mulch incorporates litter from weeds, catch crops, cover crops, and the leaves and branches of the olive trees, contributing to soil health and moisture retention. Chipping usually occurs after the pruning season in winter, and farmers have the flexibility to chop the branches either immediately or weeks later. This allows them to manage the timing of the operation efficiently. On the Asensi family farm, the technique is combined with the use of manure instead of chemical fertilizer and organic farming.

Traditionally, cut branches used to be burnt in order to maintain a tidy appearance. However, rising labor costs for burning, the dependence on specific weather conditions as well as municipal restrictions against open fires rendered this approach unviable. Nowadays, the acquisition of the suitable equipment to chip the branches is subsidized, making this innovative practice more accessible.



Benefits

For the Asensi family, this practice supports sustainable olive oil production under the "La Viña" cooperative. Due to the organic production, premium prices can be achieved.

Chipped pruned branches help restore soils in Valencia and other Mediterranean semi-arid regions. They offer significant benefits for sustainable agriculture. Being a nature-based solution, they mimic natural processes, such as the formation of a litter layer found in forest soils. This in turn improves water infiltration, soil aggregate stability, water retention, soil organic matter content and soil biodiversity, while reducing the surface run-off. Beyond soil health, this also moderates summer temperatures provides improved habitats for the local wildlife. Using chipped pruned branches also enhances the aesthetic and cultural value of the landscape, reviving the beauty of traditional rainfed agricultural land cultivated since Roman times. The restored environment has promoted agritourism, successfully integrating sustainability with economic and cultural development in the region.