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Agroforestry and the Environment



Landscape planning and management

Tree-based agriculture on Mediterranean terraces: continuing the story by renewing practices

Anna Dupleix, Rémy Marchal,
Léana Coutant, Fabien Liagre, Daniele Ori



EURAF2022



Mediterranean agricultural terraces



A **woldwide distribution** of very old practice induced by mountainous reliefs, (main issues: flat cultivation plots, erosion, water management, microclimates, agriculture in remote areas, biodiversity)



In **Mediterranean basin**, terraces systems also justified by the Medicanne phenomenon occurring when the vegetation cover is minimum (end of summer – fall)

- For a long time, terraces planted with the trilogy wheat/olive/grapevine combined with a diverse polyculture (vegetables, other cereals, other fruits trees). A part of a self-sufficient mountain economy collapsed at the turn of the 19th and 20th centuries;
- Now massively, degraded or abandoned, **paradoxically** at a time when
 - ✓ the Mediterranean area is more affected by intense meteorological events,
 - ✓ the trend towards the relocation of agricultural production is growing fast.



(Gravagnuolo and Varotto 2021, Contessa 2014)

Which place for trees in Mediterranean terraced agriculture ?

Trees offer to Mediterranean terraced agriculture...

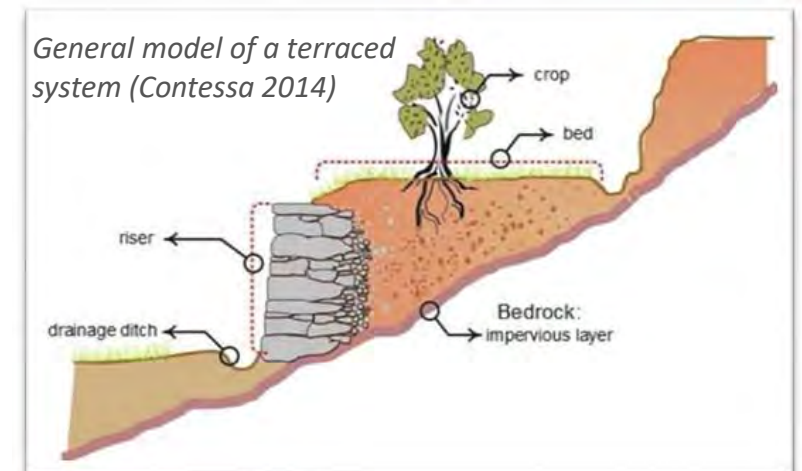
- The same contributions than those for any other agroforestry systems in terms of interaction between intercropping plants and trees, fertilisation, plant and animal biodiversity on the plot, ...
- Some more specific contribution in the context of the Mediterranean climate as shading and soil protection.

Terraces systems offer to Mediterranean arboriculture some specific advantages as...

- deeper and more humid soils in the downstream part of the terrace;
- a better management of water surplus drained via dry stone walls (*Harfouche 2006*)

But how to **optimized spacialisation** of trees inside the terrace ?

- Positioning "upstream" or "downstream" of the terrace (soil depth vs wall radiation) vs tree species and distance to walls;
- Planting density.





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A research-action in Cévennes between 4 partners



VS



Targets of the research-action

- How to rehabilitate abandoned and forested terraces, previously in the traditional Mediterranean trilogy system ? (technical path for that : afforestation, soil awakening and improvement)
- How to rebuild the terrace walls in a more sustainable way (greening them ?), as the maintenance of these walls is very costly because very time-consuming (Reparaz 1990) ?
- How to revisit cultivation practices and tree spacialization on the terraces integrating the know-how of the past and the new agroforestry knowledges ?
- How to diversify the traditional orchards making a multi-species one and varying intercropping (green manures, aromatic plants, dye plants, buckwheat, melliferous hedges, ...) ?
- Questionning the notion of food autonomy inspired by new agro-ecological approaches in small territories.

The experimental plot (started in December 2020)

- Ramdam Bio, an organic micro-farm as a part of a collective project done on 7 ha in the southern Cévennes (France);
- A 50 ares plot (10 linear terraces of Cevenol-type (*Blanc 2018*) - 5÷10 m wide);
- Creation of a nut orchard (almonds, walnuts, hazelnuts, pistachios, pecans). The tree planting programme, started in January 2022 (24 trees), to be continued on 5 years in an iterative way, using the results of the previous stages.



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Contact: Anna Dupleix,
anna.dupleix@univ-montp3.fr

*This experimental and
productive system in
progress is very open
to any collaboration*



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