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New afforestation techniques increase tree growth in Mediterranean farmlands

This release is available in Spanish.

Researchers from the University of Granada have developed new farmland afforestation techniques based on the relationship between land and plant that enhance young plant survival and development in Mediterranean environments. Their work will ensure successful implementation of the farmland afforestation program within the EU's Common Agricultural Policy (PAC).

The research analysed the effects of different afforestation land-preparation techniques on young plant survival in farmlands. The study focused on the relationships of land-plant, and analysed the effects of the afforestation program on biodiversity at the landscape scale.

This study was conducted by **M^a Noelia Jiménez Morales** from the Department of Edaphology and Agricultural Chemistry of the University of Granada, in collaboration with the Group of Forest Resources and Systems of the Instituto Andaluz de Investigación y Formación Agraria, Pesquera, Alimentaria y de la Producción Ecológica (environmental research institute, Government of Andalucía) and coordinated by **Emilia Fernández Ondoño, Francisco Bruno Navarro Reyes** and **M^a Ángeles Ripoll Morales**.

Afforestation of farmlands

The author explains that afforestation of farmlands offers interesting chances to create forests in barren areas as a result of rural depopulation and land abandonment. At the beginning of the 90's, the European Economic Community created a community aid scheme for forestry measures in agriculture. However, although the implementation of this afforestation program was successful in Spain □,000has. were restored in the period between 1994 and 2006- "this program was mostly implemented without applying any technical, territorial or environmental criteria".

Thus, for the purpose of this study, several experimental designs were developed, mostly of them in set-aside farmlands within the experimentation farm called "Cortijos del Conejo y Becerra" (Granada, Spain). In general terms, it is an area with upper meso-Mediterranean thermotype and semi-arid ombrotype that was devoted to the growth of cereals and extensive livestock farming during centuries. It was abandoned in 1993.

Land use

In view of the results obtained, the researchers from the University of Granada and the IFAPA advise the implementation of previous land use planning before starting afforestation projects. Although this can not be applied to every country, it would be efficient in Mediterranean regions. Thus, they suggest to implement moderate afforestation projects with low-density planting (300 trees/ha) to allow colonization and succession of autochthonous plants. Another suggestion is to prioritise afforestation of farmlands close to autochthonous forests or bushes, in order to get seeds and accelerate vegetal succession. Finally, they advise to implement afforestation projects in active farming lands, since their transformation favours biodiversity.

The research conducted by the University of Granada "contributes new scientific data on the best farmland afforestation techniques in Mediterranean regions, offering new afforestation planning measures on regional terms".

According to Jiménez Morales, the results obtained from this research can be extended to other Mediterranean areas "with similar ecologic characteristics". The results of this study were partially published on scientific journals as "*Annals of Forest Science*".

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