



# SUSTAINABLE CROP AND LIVESTOCK INTEGRATION (INTEGRATED CROP-LIVESTOCK SYSTEMS)

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## CORRESPONDING MODULE 4

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### **Introduction**

Diversified crop-livestock systems are more productive, sustainable, and economically competitive with traditional cropping systems. They provide for a more climate-resilient and productive agricultural systems.

Incorporating livestock production into a cropping system offers additional opportunities to recover establishment and termination costs associated with cover crop management.

Additional benefits associated with integrating livestock into cropping systems include:

- Reduced risk of raising a single product
- Increased water infiltration and resistance to soil erosion
- Increased soil organic C
- Reduced fertilizer uses from nutrient cycling

## Description

Alvelal is an Association that was created in 2014 and unites farmers, stockbreeders, businessmen from various sectors, traders, researchers from universities and other institutions, as well as citizens with the same concern and vision for the future: to improve socio-economic, environmental and cultural conditions; to face current threats such as depopulation, desertification and lack of opportunities. In short, to build a more prosperous future for our land.



The aim is to restore the landscape by creating business cases that add value to local products and generate sustainable employment.

Alvelal aims, among other things, to mobilise local society to transmit the vision that a self-sufficient, dignified region, full of life and prosperity, is possible. For this reason, they work on the restoration of agricultural estates with degraded or eroded soils, using various regenerative techniques with positive and proven results. In this sense, Alvelal works by organising training workshops, guaranteeing an open and supportive transmission of knowledge. At the same time, we provide technical support to farmers interested in improve their ecological production, the soil and the landscape of their environment. The Alvelal territory comprises the “altiplano” high steppe plateau that stretches between the provinces of Granada, Almería and Murcia, covering a unique ecosystem.

It is a large area known worldwide as a producer of high quality unirrigated almonds, with more than 100,000 hectares of unirrigated almond trees, of which 45,000 are organically grown (the largest area of organic almonds grown on unirrigated land in the world). At the same time that almonds are produced, the



*Image 1: Operation area*

Source: <https://www.alvelal.net/nuestro-territorio>

Segureño lamb is also bred.

The total territory of the partnership project is 1,000,000 hectares.

Hundreds of farmers and business people have joined together to

restore 1.000.000 hectares of degraded areas, to stop desertification, increase biodiversity and restore hope and prosperity to the people.

The aim is to produce food through a system that conserves and is sustainable in terms of natural resources. To have a diverse agricultural activity that allows environmental, economic and social restoration of the farmland. It is about creating an integrated productive sustainable agro-ecosystem, which diversifies the activity of the agricultural holdings, combining several crops and introducing livestock in the farms, complementing them with aromatic herbs, beehives, insects, to improve the pollination of crops. In addition, erosion control techniques such as infiltration lines or plant-based mulch are implemented. These techniques improve soil fertility and its capacity to capture CO<sub>2</sub>, thus helping to mitigate the effects of climate change.

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*Image 1: Example of another floating photovoltaic installation in Portugal  
Source: Provided by the company*



*Image 2: Example of another floating photovoltaic installation in Portugal  
Source: Provided by the company*



*Image 3: Example of another floating photovoltaic installation in Portugal  
Source: Provided by the company*

### **Advantages and challenges**

This production system model focuses on organic, unirrigated almond trees integrated with other autochthonous elements (aromatic herbs, wine, honey, olives, Segureño lamb, fruit and vegetables). The aim is to increase productivity, diversify the family economy, restore biodiversity and dignify life in the countryside, while generating a healthy and inspiring landscape. They are characterised by offering healthy food products.

Some project partners or farmers use solar panels on their sheds or to power well pumps to irrigate crops.

The energies used have the following advantages :



- Economic savings
- Removable source energy
- Reduction of CO<sub>2</sub> emission
- Low maintenance of the installation

In turn, they have the following disadvantages :

- High initial investment
- Variable energy source - Depends on weather conditions
- Need to install batteries to become independent from the electricity grid

### Main data

- - The management and technical team is made up of 19 people. In addition, 434 members, who are mainly farmers and stockbreeders who own the land on which the project is developed.
- - In 2016, the first project began with the commercialisation of almonds and the regeneration of the soil and landscape where they are grown.
- - The total number of members' animals is 107.000 furthermore the total area of the members is 27.000 hectares.
- - In 2017 AlVeAl designs an ecosystem restoration plan for the territory based on the 4 Returns model, in 3 Zones for 20 Years.
- - In 2019, 50,000 trees of drought-resistant native species were planted to enrich the plant life and increase biodiversity, attracting pollinators, birds and other species.
- - In 2020 a third stage will be implemented with the planting of 30.000 trees.
- - There are currently more than 100.000 hectares of almond trees.
- - Farmers and business people have joined together to restore 1.000.000 hectares of degraded areas.

### Further Information

[www.alvelal.net](http://www.alvelal.net)

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- [https://www.diariodesevilla.es/suplementos/anuario-agricultura-alimentacion-2022/otros-sectores/Producir-restaurando-ecosistemas\\_0\\_1705031147.html](https://www.diariodesevilla.es/suplementos/anuario-agricultura-alimentacion-2022/otros-sectores/Producir-restaurando-ecosistemas_0_1705031147.html)

- [https://www.diariodealmeria.es/finanzasyagricultura/alvelal-polinizacion-curso-sostenibilidad\\_0\\_1692432352.html](https://www.diariodealmeria.es/finanzasyagricultura/alvelal-polinizacion-curso-sostenibilidad_0_1692432352.html)