CASE STUDY ES01

OLIVAR DE ALOE, SL

Spain

AGROFORESTRY SYSTEMS:

SILVOARABLE, SILVOPASTORAL

Year of foundation	2015
Specialization	Olive grove with aloe vera
Farm area	3 ha
Number of employees	1, but sometimes between 5 and 10 employees(during busy season)
Year of starting agroforestry practices	2015
Location	Crta. del Monte Lope Álvarez, km. 4,4, CP 23600 – Martos (Jaén) España. Polígono 80, parcela 10.
Web page	https://www.olivardealoe.com

It is an **ecological dryland olive grove, in which an aloe vera crop*, barbadensis miller* variety, has been associated between the olive grove lines.** Therefore, the space available between the tree strata is used for the cultivation of succulent plants of low size. The trees also fulfill a protective function, although in winter, due to the climatic conditions the **aloe must be covered**. **Frost and excess water** are limiting for cultivation. The south of Spain, water deficit, is conducive to this type of crops.

DATA ABOUT AGROFORESTRY AND AGRICULTURAL BUSINESS

Initially it was a traditional olive grove crop, in which phytosanitary products were worked and used, sometimes disproportionately (not even a field weed). Given that there were **agro-environmental aids** at that time, that there was space between the olive trees, for the commercial exit of olive oil and for the sustainability of the agricultural system, the possibility of changing the production system and diversifying the product was seen. A product was chosen that had great market potential such as aloe vera.

Not because of the implantation of aloe as such, but because of **the change from traditional to ecological, agroforestry exploitation has changed radically**. It is practically **not necessary to introduce inputs**, achieving the sustainability of the agricultural system and obtaining greater profitability, reducing operating costs and obtaining a product of **higher quality and greater added value in the market**. **Biodiversity has increased** exponentially. Before, with pesticides, there was not so much diversity of insects, birds, etc. The rabbit is a species that, although it helps to fertilize the land, produces specific damage to the crop because it spoils the aloe plant. The mole damages the roots, but it is being controlled naturally by having more reptiles (snakes, lizards), raptors, etc., that control this rodent. The system is balancing. **Defective sheets** that are not sold (commercially have no value, because of their size, malformations, etc.), and in this operation experimental tests are being done by crushing the leaves, **macerating them and diluting them in low concentration in water, and serves as a repellent (for the fly), for the fruits it is thrown on the tree and they are protected for longer, and at very low doses it is also used as a fertilizer.**

- **Ponds have been created** between the crop and now amphibians such as the gallipato are seen, many more partridges, badgers, turons, both day and night raptors, lizards, snakes, etc.
- A much more sustainable, self-regulated and economically more viable crop has been achieved. This year, for example, there will be **no olive harvest due to lack of water and excessive heat during the flowering season and, thanks to aloe, it will be possible to obtain a yield** for the farm thanks to this other crop that coexists with the olive grove.
- **Nest boxes for raptors** have been placed to control rodents, to minimize damage by moles, the main threat.
- **"Hotels" have also been placed for insects** (olive sticks, with holes for them to raise wild bees, spiders, etc.).
- **Sheep is used to control the herbaceous stratum**, if necessary. In addition, livestock and fertilize the land.

The cultivation of **aloe is chosen mainly for two reasons: for the economic and market potential**, and for the **few requirements that the crop demands, especially water. Aid was obtained by the Provincial Council of Jaén for alternative crops and agro-environmental aids of the Junta de Andalucía** to change the olive grove from conventional to ecological system.

It is important to note that knowledge of the crop and the market is required.

DESCRIPTION OF USED TECHNICS DURING ESTABLISHING OF AGROFORESTRY SYSTEMS

The olive grove is within a traditional planting frame of 12 x 12 meters, so, as indicated above, **there was space to test an alternative crop that coexisted with the olive grove, since it does not compete with the olive tree for water or nutritional resources** being that the root system very superficial. **The separation of aloes is approximately one meter, between plants of the same line and between lines.** For the initial implantation, a machine was used to make ridges. **Thus, no machinery is used since it is all manual.**

THREATS/CHALLENGES

- **Aloe vera has enormous potential, but it is still an unknown product**, **especially Spain**, having greater demand in Central European countries, where, in addition to cosmetics and pharmacology, it is consumed as food. Even fresh leaves are sold in supermarkets in other European countries and not yet in Spain (only in some organic stores). Advertising campaigns are needed to show the consumer the benefits of their consumption for health Campaigns should be made by the Administration to value this crop and be known by the population. There are also deceptive and fraudulent products on the market that, announcing that they carry aloe vera, do not actually carry it, so that the consumer also feels disappointed by the supposed properties of the product they are acquiring.

CONCLUSION

It has gone from an unsustainable olive cultivation in which the land was also underutilized, to a crop that combines tree elements with aloe vera, in a totally ecological way, which demands labor and in which virtually **no requirement is required of inputs**. **The profitability of the operation is much higher, and the operating costs are relatively low.**

With a change of mentality you can reach a much more sustainable and more profitable crop.

FUTURE PLANS

In another plot, of the same group of companies, but located in another location, a project called **"edible forest"** will be developed. It is an abandoned plot (wasteland) in which it is intended to implement an **agro-livestock system, planting vegetation in three strata (arboreal, shrubby and herbaceous) and with cattle (chickens, pigs) self-regulated and self-sufficient**. Horticultural, fruit and trees that act as windbreaks, protect against sunstroke. It is to recreate a forest that is intended for food production. (More info at https://bosquescomestibles.es/)

FINAL RECOMMENDATION

Organic farming courses have been taken, and from olive groves, aloe. Certain business notions are also necessary to take proper management of the exploitation and marketing and new technologies to promote your product in the market. It is important to partner with other producers to share experiences, new knowledge, face new challenges, etc.

Farmer recommendation:

"Agriculture is time and patience and you want to focus on it to be sustainable. Time implies experience. Once the balance has been achieved, the system regulates itself, and practically there is no need to intervene, but instead to collect the product. At 10 or 12 years, the aloe vera plants must be renewed, but in the meantime the plant is regenerated, taking about 50 new stems / year. Keep in mind that in one hectare they can take up to 10,000 plants (the most normal is about 7,000 / ha)."

KEY WORDS

Silvoarable, silvopastoral, aloe Vera, Olive graves, organic farming, sheeps, biodiversity, manual work

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