



Finca Verde Regenerative Permaculture Agri-Food Project

Case Study Q4 Y1 2023

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Objectives for Y1

High Level Objectives

- Research, documentation and development practical solutions to major challenges of our time including water shortages, loss of biodiversity, food production and strengthening local economies.
- Research & documentation of a case study over three years producing an annual report of solutions trials and results.

Team Objectives – Specific Measurable Achievable Relevant Time-bound

Split budget across our four main themes following the seasons:

water shortages (spring/summer)

- optimizing irrigation practices
- maintenance/repairs to irrigation system
- documenting & optimizing water catchment systems already in place

strengthening local economy (all year)

- document participate and promote local exchange practices
- collaborate with local initiatives including the seed-bank, permaculture initiatives

food production (spring to autumn)

- optimizing and document farm harvests from main crop, foraging and wild foods

biodiversity (quarterly)

- put in place scientific survey practices to document changing levels in biodiversity
- document creation and effects of micro climates through changes in water management



Objective: water shortages (spring/summer)

- **optimizing irrigation practices**
- **maintenance/repairs to irrigation system**
- **documenting & optimizing water catchment systems already in place**

Pruning Olive trees

As we harvested the olives we pruned as we went along.

We pruned dead branches that did not have any leaves or olives on them.

We also pruned branches that had olives on them, but which we impossible to harvest using the tools we had, making them accessible for harvest once they fell to the ground.

This also meant the tree would not not be able to produce olives in such a hard to reach place next year.

The pruned wood will be used as firewood.

Retrospective

What went well?

Reduce the watering needs for trees, as unproductive branches do not need watering.

What could have gone better?

As we did not harvest on all the terraces we did not prune all the trees.

Water events: Overflow & water access

During this quarter we had two types of surplus water events.

The first type of event was rain, which resulted in excess water runoff from the hills into the acequia.

The second one was a snowfall event, which resulted in surplus irrigation water to enter the irrigation system as meltwater.

The community allocated the surplus water to the members using informal discussions. For the Finca Verde team this involves talking to neighbours about how much water is coming into the acequia and who and how much could extract the extra water outside the normal pre-agreed times.

At one point we got a very short notice about the coming water, and were unable to drain our water deposit in time to accept the influx of water that came.

Since our exchanges with the neighbours they made sure that we knew to access the water and open up the irrigation. In turn we also let them know and they were able to come and open theirs.

In practical terms, every farm has its own access to irrigation water through the acequia for X hours a week or once a fortnight as prescribed in their land deed... Excess water is when the farm irrigation system, more specifically the pipe used to tap into the acequia is over capacity, i.e. more water is coming than can be piped into the irrigation system.

This triggers an overflow agreement of the acequia management. Normally this would be an opportunity for anyone downstream to take this water even outside of their normal watering times. In the case of heavy rainfall or snowmelt the amount of water flowing in the acequia is so high that all farms enjoy the excess water even if they are upstream of the person who has watering rights at that time since the amount is much greater than capacity of any one farm access point.

This does not mean that farms would open their access to full capacity, it may mean part access to all so that all may enjoy it.

Objective: strengthening local economy (all year)

- **document participate and promote local exchange practices**
- **collaborate with local initiatives including the seed-bank, permaculture initiatives**

The Finca Verde Team has signed up as a member of the La Flor de la Alpujarra S.C.A which is a local cooperative mill specialised in milling extra virgen unfiltered cold pressed organic olive oil.

The cost of the membership is 50 € every 2 years and gives us the right to mill at the cooperative.

Additional benefits include oil quality testing, food grade quality bottle sourcing. Access to information and training occasionally offered by the mill.



Retrospective

What went well?

We got to know the employees of the cooperative who were very helpful in explaining the costs of milling, the different ways one can interact with the cooperative for example if milling for ourselves, to sell to this parties or to sell to the cooperative. They also explained the difference in pricing for organic certified and organic non-certified in terms of selling to the mill.

What could have gone better?

The interaction was very quick because the mill was very busy. Perhaps we can organise a meeting after the season is over to talk about potential collaboration.



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The Finca Verde Team decided to test out 4 different models for this years harvesting activities.

1. The Volunteer Model

In this model Finca Verde offers full board accommodation and permaculture education in practice in exchange for 5 hours a day of farm labour.

This includes opportunity to explore the surrounding areas, learn about regenerative farming and permaculture whilst enjoying the winter summer sun.

We wanted to make this offer a valued one in that people are not just workers but have the opportunity to become a member of the team and learn from their experience.

Retrospective *What went well?*

We have a clearer idea of how this model is received within the local community, with the changing volunteer ecosystem and how this can affect the project in general.

What could have gone better?

We think that not having a dedicate independent accommodation is reducing our chances of attracting volunteers. The accommodation we do have is small and the communal areas are limited and shared. This also discourages the permanent residents from seeking volunteers as it significantly reduces the usable space inside the cortijo.

The feedback from the local community was negative in that they see the volunteer model as too exploitative and as it taking away from paid work opportunities from the local population especially due to high number of people unemployed or working informally subsisting hand to mouth.

We did get a volunteer wanting to come however the day before he was due to start whilst we asked for a confirmation he simply said he made other plans. This left us with no time to find a replacement.



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2. Share of harvest model

In this model, people join the Finca Verde harvest team and they get to keep one equal share as a member of the team for example: if there are 4 people harvesting they each get 25% of the harvest.

The costs of maintenance and running of the farm throughout the year is not accounted for in this model.

The costs that are included however are the costs of milling which is dictated by the mill cooperative and cost of the bottles.

Under this model the farm supplies all the equipment and bears the costs of maintenance for the equipment.

Retrospective

What went well?

We had 4 people in the team under this model and a fifth person under a different model which will be covered in the next section.

We were able to collect data average harvest rate vs oil output and test out this model's financial viability.

We were able to meet the harvest minimum for milling and everyone harvesting got their share of the harvest.

We were able to have some produce that we could sell.

What could have gone better?

Financially the farm bore all the costs of the capital investment for the equipment and the maintenance necessary for the harvest to be possible.

Unfortunately this lack of representation of the farm as it's own entity meant that should the individuals who participated in the harvest team decided to keep their share instead of putting it back to the farm there would have been no tangible product from this exercise. In this case 2 members of the team as Finca Verde residents put their whole share towards the farm whilst the other 2 people took their share in oil.

Finca Verde offered to buy their share of the oil at 9€ per liter which is the current local rate however they decided to keep it.

It was unclear to team members which costs would be included as milling costs which resulted into the farm having to bear the cooperative membership cost. This could have been avoided by documenting in writing the agreement.



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3. Fixed Rate Exchange Model

In this model one person was interested in joining the team on a fixed hourly rate agreement. The rate offered was of 8.45€ per hour which is the minimum wage in this region. This number is figurative and would be exchanged for any combination of the below.

- almonds @3.50€ per kilo
- olive oil @9€ per liter
- wood at 90€ per cubic meter

Retrospective *What went well?*

The person agreed to the rates and the exchange opportunity and joined the harvest team.

Assuming 5 people harvest 500KG in 3.5 days of picking this would work at 0.8 liters per person per hour assuming 20% olive to oil ratio which would work out to 12€ per hour if the oil is sold at 15€ per liter. This works out to c. 70% for the picker and 30% for the farm would be sufficient to cover maintenance costs.

What could have gone better?

It was difficult to anticipate whether the picker would pick enough to cover the costs of the exchange. It was also hard to anticipate how much the total harvest would be.

Since this person was on a fixed rate and not on a share model but with a part of the exchange possibly affecting the total share to be split, it created a tension between people in the share model and the Finca Verde team due to lack of previous agreement as to who and how the costs of the person on the fixed rate exchange would be covered and how it would affect the share remaining to be split.

In the end the person decided to take half the exchange in olive oil and half in wood. This equated to 12.5 liters of oil and c. 1.2 cubic meters of wood. Had they decided to take the full amount in oil there would have been a dispute as clearly stated by the share model team members who would have objected to this.

Again having a written agreement could have resolved this tension.



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4. Third party pickers

In this model a team of pickers would come to the farm with their own equipment and harvest the olives at a 70% / 30% split.

They would also mill at the cooperative where we are members and would test the quality of the oil. Deliver the oil in bottles after milling.



Retrospective *What went well?*

We met the pickers whilst they came to assess whether they would be coming to do the picking.

We have their contact for future collaborations.

What could have gone better?

We could contacted the team earlier in the year so as not to have to compete with many others for their attention.

They said they did not have the necessary offroad vehicle needed for this terrain, however when we offered our own this did not impact their decision not to come.

It is not clear exactly why this didn't work out and we could speculate that they have other places to harvest which would yield higher returns for example flat land / wider terracing allowing for better rate of harvest.



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Semillistas ran an ESC Volunteering programme for the planting of seeds in a reforestation project. A part of this is to provide activities that bring benefit to the volunteers such as massages, educational sessions that are relevant. The team invited the Finca Verde members to hold a social permaculture session for the volunteers.

The session was centered around personal transformation using Looby McNamara's Design Web onto an A5 postcard.

The session helps to how permaculture design methodology which students can replicate in their own time. It also gives students an introduction to permaculture design use outside of the conventional land use design.

<https://www.semillistas.es/>

Retrospective ***What went well?***

It was a pleasure to work with the Semillistas team, the workshop was well received and we had interesting conversations about the applications of permaculture on land and non-land projects.

What could have gone better?

It really could not have gone any better, we are looking forward to future collaborations.



Objective: food production

- **optimizing and document farm harvests from main crop, foraging and wild foods**

The olive harvest was an interesting challenge this year because of various factors:

- it rained almost all of that week which caused fear of rotting produce, interrupted work sessions because we could not use the electric tools in the rain and increased risk of injuries due to slippery terrain.
- not every tree had olives to harvest on it, one reason for this is that olive trees have alternate years of production, another reason may be that the drought in the long summer affected production levels, a third reason is due to the heavy pruning done in the beginning of the year which on the one hand reduces water stress and on the other reduces productive branches.
- the size and experience of the harvest team influenced the rate of harvest, we also had to contend with a last minute cancellation from a volunteer
- the third party team we contacted to continue where the first team left off did not have the necessary equipment to work in the rough terrain



Retrospective

What went well?

We got to know new people working as day labourers and also a team of people who harvest for others for a percentage.

We harvested enough to bring us over the minimum for milling which is 500kg, we had 550kg.

We managed to take the harvest to the mill on time and the produce did not rot on the ground.

There was great satisfaction in bottling our own oil as it comes out of the press fresh.

What could have gone better?

Unfortunately we could not have controlled the weather or whether a volunteer shows up or not. These are difficult challenges to avoid or overcome.

Had we decided to move the dates for the harvest we would have lost a further 2 people from the team so we felt that we had to go ahead even in the bad weather conditions.

We probably had left it too late in the season to call the second team in and they were already being more selective as to where to harvest thus discounting Finca Verde as somewhere that requires more effort than harvesting on flatter and more accessible land. Their concerns were expressed only after their visit, perhaps these could have been addressed on site by the manager had they been there during the visit.

Many olive trees remain unharvested at this stage.

biodiversity (quarterly)

- **put in place scientific survey practices to document changing levels in biodiversity**
- **document creation and effects of micro climates through changes in water management**

We have noticed a marked decrease in occurrence of large animals - boars, ibex, and foxes on and around the land. Some ibex and deer, presumably red deer, were seen hiding nearby after being disturbed by hunters.

Although we did see one fox in its beautiful winter coat which was magnificent.

A lost dog also showed up one day. It got lost hunting nearby boars.

The frogs that lived near and in our water deposit have left.

Lizard population remains low - they are seen occasionally, but not as frequently as in previous years.

There have been no recent snake sightings.

We did get some birds visiting us, possibly including an iberian chiffchaff (*phyllosopus ibericus*) and common chiffchaff along with the usual residents the spanish common wood pigeons, spanish sparrows. The athene noctua, a common local owl seems to be resident here and can be heard most of the year in the valley.

Smaller animals, like hairy caterpillars, are still found inside the home, like in the bedroom. They are highly venomous and can be fatal to dogs with just a single touch.

Wasps, common blue bottle flies and house flies, and hornets have all but disappeared.



biodiversity (quarterly)

- **put in place scientific survey practices to document changing levels in biodiversity**
- **document creation and effects of micro climates through changes in water management**

Nearby closer to the villiage there was an incidence of fire which was started by a farmer this is typically down to burn down organic matter such as leaves and pruned branches. The burning is used to reduce incidences of olive fly but also as a cheap way of cleaning up.

In this incidence the farmer walked away from the fire believing it was extinguished but later when the wind picked up the fire reignited and became wild. It burned through their farm and neighbouring farms including one cotrijo.

Many other farms where also in danger as the winds were blowing towards the town and other farm houses in between.



The fire fighters from the town and from larger towns nearby came to address the fire and were able with the help of the community of irrigation (communita de regantes) to redirect water from the acequia towards the burning property and for use of the fire fighters.

This was a show of collaboration but also a great pity that centenary olives perished in this fire and lives were put at risk because of this practice.

The farmer will also be fined thousand of euros from the Junta de Andalucia for negligence and damages. This is the sort of risk that can be avoided by simply applying the shredding of organic material instead of burning it.

Luckily the fire was under control before it reached the town and no one was injured.

This incidence certainly reminded the locals of the danger of this practice and we hope that alternative safer and more eco-friendly methods will be promoted and adopted.

Whilst this is not directly relevant to our farm, members or our support system were in danger and we want to illustrate the practices around us as a learning.