**C6 – Interview cooperative Jaen – 08-11-2021**

**Could you please introduce yourself and the cooperative?**

This is the cooperative [name] in [place]. Here we produce only olive oil, that is our business. We produce 2-2.5 million kilos of olive oil per year. But we obtain also the by-product alperujo. This is transported about 10 km for disposal to the orujera of [name], with which we have a partnership. Also from the cleaning of the olives, we obtain a mixture of dirt and leaves. We have about 500 active members. They differ a lot in plot size, some members have only two hectares, some have 500 hectares. There is a large difference in terms of size and in volume of olives delivered by each member.

**And what are the services offered by the cooperative?**

The cooperative only gives advice to the members, for example how to manage policy documentation. Our main function is to produce the oil and market the oil, we determine the value that each members oil has.

**How is the transport of the pomace to the orujera of [name] taking place?**

[name] is a company that consists of different cooperatives, it is like a cooperative of cooperatives. [name] accounts for the costs of drying and obtaining the pomace, further they commercialize the products that the produce in the process: pomace oil, olive stones, and electricity. The income [name] generates is distributed over the cooperatives. However, the income is maily used to cover the costs. We do not give the money to our members, but we use it to cover wages and electricity and such of the cooperative. Since the founding of [name] in the 1960s we have brought our alperujo there. Previously, we used a three-phase decanter, in which we produced dried pomace, which was better for the Orujeras. Now we use a two-phase decanter and the pomace needs to be dried at the Orujera. The orujeras were established because the waste was a major environmental problem, with the pomace we cannot do anything ourselves.

**How many people work for the cooperative?**

Well it is a very seasonal job. During the harvest there may be fourteen people working here, and after the harvest to clean and maintain the factory. But after that, there are only three, four people left.

**What do you do with the olive stones?**

For quite a few years, fifteen or twenty, we use a process for separation of the olive stones. After obtaining the oil, the remaining mass is subjected to a centrifugation process. Here most of the olive stones are separated from the rest of the olive pasta. We sell the olive stones separately to companies that are dedicated to the commercialization of biofuels such as the olive stones. A small part of the stones we sell to members of the cooperative, they use it for domestic heating. About 10% of the olive stones we use ourselves for heating.

**Does the cooperative do something with the pruning waste?**

No, the cooperative does not do anything with that, the farmers do that themselves. Almost all farmers chip the pruning waste and use it as vegetation cover or compost on their field. It is a long time ago that farmers burned the pruning waste, but I know that a small part of the farmers still burns the pruning waste. This change from burning to chipping has come about naturally. We have not had to force farmers to realize there was a better practice, cheaper and faster than burning. In addition, for two or three years, in this region, the four municipalities: Villacarrillo, Villanueva, Orihuela and ?? have prohibited the burning of pruning waste for environmental reasons. The burning produced a large amount of particles in the air that decrease air quality. Now, it is forbidden, but that was symbolic, the pruning waste was not burned here anymore anyway.

**What are the biggest challenges in the olive sector?**

The biggest challenge is mechanization and decreasing the production costs of the olive oil, above all in the production of the olives. The mechanization of the olive groves is the biggest challenge because we have traditional olive groves. That is generally set up very wide, and without much irrigation. So the production is not very much compared to other areas. Further, mechanization is expensive. This makes the production of olive oil expensive, especially compared to more advanced modern cultivation systems. These produce oil at a lower price than use, while we have to compete with them. The farmers need to mechanize, not the cooperative. The process at the cooperative is relatively optimized. There are always improvements to be made of course, but there would not be a very big improvement. The farmers need to optimize, we are working with an olive grove of the 20th century, and competing with the olive grove of the 21st century. There is a lag that requires a great investment, one that we are not carrying out right now.

Another challenge is the commercialization of the olive oil, because we sell the oil in bulk. Producing bottled oil that can be sold more directly to the consumer without an intermediate would increase our profit, and benefit the members. We try to expand more and more the amount of oil that we commercialize and package ourselves. We are not part of a cooperative of the second grade, we are for now independent.

**And what are the challenges regarding sustainability?**

Well that is mainly facing the farmers. Everything that is important is part of their work, the energy costs, the irrigation. Currently there are farmers who are transforming their irrigated farm to install solar panels there. That is the main sustainable energy source here, because the wind has not a very great potential. Some facilities are being modernized by means of solar panels and are putting irrigation through solar panels to save energy.

Also the problems that I have been describing for the cooperative, with marketing the oil, are problems for the farmers. The farmers need to modernize their exploitation to remain competitive.

**If you could improve something, what would that be?**

Regarding our communication with farmers we discuss the problems that they have too. We are not going to discover any problem for the farmers. They are the ones who see the problems and each is solving that in their own way. The farmers are open for improvements in there is an economic benefit. If a process can improve our result we would be willing to change it provided that it is economically feasible, and does not require a large initial investment. We have no problem with taking the products to another place then we are used to.

**What do you think about the biohub concept? (The biohub concept is shown)**

It seems to me, that is can help the recycling in the area. We handle large quantities of both alperujo and olive stones. The transfer to a plant, the industry where it is treated, entails high consts for any company to commit. The recycling would need to take place in a nearby area to be more viable. Both the generation of energy and the improvement of the soil by incorporation of the biochar would be beneficial for the area. A role for the cooperative could be in composting the pruning waste, there are already some cooperatives doing that. That would require to make an investment thus the members need to be willing to commit to that.

**Do you see obstacles regarding the implementation of the biohub?**  
Those are mainly economical. If there is a subsidy that would make it easier for use to realize such a project. The investment could be hunderd of thousands to a few million euros. This investment is something that the cooperative needs to do on its own. Partner financing would be very complicated and expensive as well. But the cooperative would be able to provide biomass to the biohub.

**Do you think the biohub can disrupt a system that already exists?**

No, not at all. Right now the problem of alperujo is solved, which was the biggest problem. But it is an imperfect solution that has its difficulties and problems. Treating the pomace in another way, more sustainable, or even more important, income generating, would be no problem. There is no 50 year commitment, there is nothing that binds us to deliver the pomace to the orujera. The orujeras emit fine particles into the environment and have worsened the air quality, even though filtering systems have been implemented in the chimneys. If there is a better option, we would have no problem using that best option.

**What do you think about the power and interest of the actors, are actors missing? (shown the power-interest grid)**

The government seems to be quite well placed. They would have the most power, because they help financing or subsidizing transformations. The municipality have little power, but much interest, perhaps it could have more interest. But on one can have much power because power I mainly consider economical. When it comes to power in my opinion, being able to get finance from the municipality can have a lot of interest because it can improve the environmental conditions of locals. Providers of technology would have a lot of interest because it would be a good business for them to sell their technology. They would have a lot of interest, but to a lot of power, they could only give facilities and financing an little else. The farmers, they have to agree with part of the initial investment and they could receive the financial benefits that results. They would have more power because they are in short the ones who make the decisions. In the end, the producers are the ones who have to get their approval because they are the ones who have to face the investment in the cooperative. The oil mill and the farmers, I see that as a unit, not something separate, The private mills is something else, but the cooperative are equivalent to the farmers. Perhaps the private mills have more interest than cooperatives in this new way of managing the residues. The private mills have more problems than us, because we are part of the company ([name]) that manages the delivery of the pomace. The delivery of the waste generates us some income, but its an income to the partners. Private mills are almost never part of these companies, and they have a residue they cannot get rid of. In some cases they take it to the orujeras with the additional cost of transportation. The waste transport companies, right now they do a transport in our case of 10-12 km. If the plant were further away, they would be more interested. Depending on where it will be located, I assume that these plants would be smaller and more automated and would be closer to each oil mill. Then they may not be interested, because it would lower the transport requirement. Of course that is the same for the biomass collectors to whom we sell the stones now. We incorporate the stones as part of another plan that is managed here. It would be against their interest because they would lose part of their business. The communication platforms can truly have high power because they can generate positive opinions and favor a climate to realize the project. They can convince those who make decisions in the institutions, the national government or the Junta Andalucia, as well as the farmers themselves to realize that we can do this. The cooperatives are in the right splace. From what I have said, I consider the maritime industry to have high interest, since they are very polluting. They are an important part of the pollution and CO2 emissions that we need to clear. If they reduce their carbon footprint, it would benefit a lot and improve their image a lot. Right now it is quite deteriorated. The legislation and those who have to enforce it, the transformation, would be very important.

**Do you now receive benefits from the government?**

No, we receive regulations, not help. For example what we talked about the burning of waste that is prohibited now. Here the use of biofuel is not allowed either. In the town a few years ago the Junta de Andalucia gave a grant to transform the heating boils in the home to use olive stones. At that time they said that is was very sustainable and very good. Years later, the same Junta de Andalucia prohibits the burning of stones in these boilers (because of the particle emissions?). This seems to me an incoherent part of the administrations. But what can I say, she who makes the law is never wrong. That is what it seems to me from a distance.

**We have heard that is a problem that young people are not very interested to work in the fields, what do you think about that?**

In this area I see that quite some young people are joining the work in the fields. In my opinion, the attractiveness from working on the field or to continue the family work is that depends on the economic feasibility. You do not dedicate yourself to an activity that does not generate enough income to lead a life you want. But many young people are working in the olive sectors and some of us have even come back after some time. I personally was away working, and have now returned to work in the fields. Some young people are forming service companies because may owners are getting old and are no longer able to do the work. The service companies can give the service that the owner can no longer do. That is also generating an optimization in the resource use. Because not each owner needs to own all the machinery which he uses very little, it is better that a company has the machinery and works on a lot of fields. This makes the production of the olives more economical. Some of these young people also have their own propery, some lease land, and some are only providing their services.

**What do you think about the immigrants who work in the field during the harvest?**

Luckily they are there, otherwise we would not have enough workers in the harvest. The population is limited and with the people here we would not be able to do all the work in the harvest. Numerically we are not with enough to be able to carry out the harvest. There used to be a lot less olive groves, in the last 30-40 years the land has changed from 30% olive grove to 99% olive grove. It has concentrated the employment during the harvesting heavily. Also the olive groves are much more productive and need more labor during the harvest. They are immigrants from all over the world, from Africa, the Maghreb and Sub-Saharan Africa and to a lesser extent Eastern Europe, and some from South America. But 80% are from Africa, about half from the Maghreb and half from Sub-Saharan Africa. Generally there is no yearly contract, but during the harvest season there is a contract. In many cases it is a matter of habit and the same immigrants who come every year work for the same farmer. Unfortunately, many of them search for work, they know that there is work here and they come looking for work. Sometimes they can get work and sometimes not. But most of them come with the certainty that they have an employer. Normally the farmer has a house where they can stay, in some cases it is a rented home that is paid for by the farmer to accommodate the workers.

**Could you share with us data on the energy and water use in the facility?**

Well, I don't know the data on consumption. The electricity consumption is quite high during the harvest. There are many machines working a lot with very powerful engines. We try to change the engines to be more efficient. For example two years ago we did a modification of the cleaning machines. We put machines with greater capacity but the same energy consumption, achieving greater production. With all of that, the bill is about 15-20 thousand euros per month during the 3-4 months of the harvest. We use a little bit of water from the municipality to process the oil , because this has to be drinking water. But what consumes the most water is the washing of the olives, we have a small well here from which we draw the water needed for this.

**After the interview we still received some information:**

On average we produce about 1800-1900 tons of alperujo. Regarding the pruning waste, I see some inconveniences for composting, for the collection of the pruning waste. First, we would have to modify the machinery we have, because almost all farmers have the machinery. And the people who do not have the machinery would still prefer a service company to chip the waste and put the remains on the ground because that is economically very favorable. Waste collection would be a high volume of material, needed to be transported. The engineering of the process would be complicated because a chopping and collecting machine needs several trailers. Here we cannot do the same thing as with corn with a parallel track in which to pour the pruning waste. From my point of view the collection would be quite complicated. Also I do not know if it will be successful or not with the new CAP to access a portion of the grant money. One of the requirements to comply is that we embrace permanent vegetation cover, both living and inert. If then the cover that is produced by the chipped pruning waste would meet the requirements, that would be easier to manage that living vegetation cover. I am very much in favor of the vegetation cover both inert and living, but the cover of pruning waste generates high profits with very low costs. For the farmer to take away the possibility to exploit the waste, that would be complicated. Another possibility is when the olives are cleaned and the dirt and leaves are collected. That is centralized and can be used for biofuel, this would be easier to collect and use. The firewood also has its value. The income received from it is very low, but at least it compensates the expenses of collecting it. It cannot be left in the field.