**C5 – Interview cooperative, Jaen – 12-11-2021**

**First, can you introduce yourself?**

I am 50 years old now, I have been working in the cooperative for 26 years. I am the president of the olive mill. Our cooperation has almost 1200 members, but it differs since not all members are active. Next to the production of olive oil we do the bottling of the oil. Other services we provide to our members is that we sell pomace and fertilizer, and we have a gas station.

**How are the olives collected at the mill and how is it payed for?**

We have a good method of collecting the olives. It is received in lines, which weighs the olive during collection. The olives are immediately cleaned as well. After this the olives are grinded and the oil is separated in a two-phase decanter. The payment to the farmers is based on the fatty acid content of the olives determined in a sample. The farmers get paid per kilogram of olives. This year for the first time a time-dependent price will be paid, this does not happen in other cooperations. If olives are delivered in November and December, the price will be higher than olive delivered in January and February. But the most important aspect is the fatty acid content. The farmers are paid when the olive oil is sold. Although for some farmers a partial settlement is made during the season to account for costs. The average price of olive oil is three euros. The last four years the price was less than three euros, this year it will be a bit more.

**What are the prices for the olive stones and the pomace, and what do you do with it?**

The stones are 0.789 euro per kilogram. The Pomace is no longer paid for, the secondary industry gets it for free now. We even have to pay for the transport. But it depends on the cooperative, if they provide pomace with a higher oil content, they do get paid for the pomace. We sell the stones to a packaging company. These are companies that are dedicated to the handling of olive stones and selling it in bulk. The pomace goes to the extractors for the extraction of residual oil, because there is right now no other way of treating it. We do it this way to produce at the lowest price possible the highest quality of olive oil possible. We produce at the lowest possible price, and get a maximum amount of oil from the olives.

**What do you think are the biggest challenges this sector faces?**

The main problem is the price of oil, that is too uncertain. Prices are based on the competition. The super-intensive olive grove produces at much lower cost than the mountain olive groves here. The greatest challenge lies in the future, because on superintensive groves the costs for harvesting are low, while here harvesting is quite expensive due to the terrain. To combat this we should go for the highest quality olive oil, to be able to sell at a premium.

**What impact do you think the biohub can have? (Alfonso shows and explains the biohub infographic)**

An example is to allocate part of the pomace to a cogeneration plant, to generate electrical energy. I would like the region to have a cogeneration plant, but it requires quite some investments. I just tell you what I think would be feasible here, but another plant uses the pomace already. I have seen a cogeneration plant in Chile as example, but I am getting lost. About your vision, it is trying to incorporate the circular economy and sustainability. I would give a scheme of the biomass flow and where they are going. This is biochar? Well this would be hard to implement here. The composting on site needs to be applied mechanically, because here it cannot be transported on a trailer. This would be more feasible in easier accessible terrain.

**Would you be interested to participate in the project?**

I do, as the president of the oil mill, and as a coach. But it does not depend on me, as I do not have the final say in these issues. But as a cooperative we could manage the by-products. I would do business on a cooperative level, with unions or cooperatives. To ensure that all pomace biomass production of the region is used. I would not like to see it as a private investment, I would prefer if all cooperatives would work together. The project should be managed by a society of the cooperations, in my opinion.

**What would be the best way to focus on your core competences?**

Concentrate on my basic skills. Why do I not do the secretary work which is non of my business? Because I am everywhere aiding with my knowledge.

**What would be the benefits of participating in this project?**

Especially economic benefits and for sustainability. Both job opportunities and financial benefit. Of course, it would generate employment, it would be part of a circular economy and it would be positive for the environment.

**What are the barriers for implementation, what prevents you from participating?**

Currently, the infrastructure. There is no infrastructure yet, and no capital to invest. Private capital cannot be obtained now, since they are not interested in these kinds of projects. While the cooperations cannot remove enough cash to tackle these issues. I think it would only work is the investment is partly public and the rest is financed by the cooperatives, that would be better. Of course, we will always be in a discussion then on what is public and what is no longer public. The most feasible would be more cooperatives joint investment an sharing of the profits.

**Are people willing to change their practices?**

Well, I do not know. The issues is for example, the farmers chip the pruning waste and leave it as compost. What is done in other cases is that it is used as firewood to be sold by the cooperatives, but here that is not the case now. There is no initiative for that at the moment. The profitability of such as scheme depends a lot on the terrain. Due to the mountains here, it is hard to get the wood out of the fields.

**Do you see any harms that the project could do?**

What is a harm? Especially the subdivsion of land in very small plots is a problem. There are many owners with small plots, which makes things complicated. The project could fail if the price is not right. If the collection of pruning waste is not profitable.

What do you think of the position of the actors in this power-interest grid? Are actors missing, or should their position be different? (Alfonso shows the power-interest grid)

Okay, I will discuss step by step all actors. Right now the easiest solution to get rid of pomace is to transport it to the refinery. Only the refineries want the pomace, they want to centralize the facility. While they are the ones that send the olive stones abroad by boat, which is not right. They have the benefits of our biomass. The government does not see it. But there is a lack of interest everywhere in the sector. To tell you the truth I am always focused on the sale of oil, it is my mission to sell the oil as expensive as possible, while the pomace is treated as waste. And the region? Today I passed an extractor and a cogeneration plant. It could be useful to see what happens if the pomace is treated by just combustion, or by methods that make it possible to produce other by-products. The cooperatives have minimal interest, at least I do not see much interest. First of all because there are no projects like this being conducted at the moment, and second because the cooperative cannot invest money. The members need to approve of investments, it is very difficult to agree on investments with 1200 members. In a private organization the boss can make such decisions. In a cooperative, an approval by the member assembly must be given, it needs to be something that is easy to understand and that looks very promising. They have to consider it so easy that it will result in short-term profits, without investment risks. That is how I see it, even if I ask for new machinery it is rejected, unless it is essential to the mill. If an investment is not aimed at improving the olive oil than it is not worth it, that is the response of the members.

**And what do you think that apart from economic benefits the project can bring to the people?**

I believe that there is an environmental benefit. This is renewable energy. I do not see what else could be done, apart from cogeneration. But those are very expensive plants. Regarding biofuels, bioethanol can be made. This removes the residue and generates fuel for transport, but of course we do not know the quantities. The plant needs to be supplied to make it viable, so it has to be a very big plant. If you produce so much product, you need to know who is interested in purchasing it. At the moment people just provide the extractors. But do you know how they earn money? Yes, they can extract the residual oil, but they have the problem that the pomace is very wet. Removing the water has very high energy cost. Then they take out the olive stones and sell it for a high price. Now we even have to pay for the transport of the pomace, although I think I already had to do that. It is clear the the low price of olive oil gives no room for investments. If the price would be four euros, it would be possible, right now is a good year. At this moment I would not need private support. A company can be created that will take care of the project. But I think he is already with that person in the middle of a project. He is experienced with using cover crops, but here we do not do that. Now I can spread the idea. Cover crops can be used to fix nitrogen. Maybe people are open to the idea. But the problem is the same as for mechanization, the terrain. I know you can create cover crops, but you have to do it by hand.

**What do you do with all the by-products?**

We sell the olive stones to the members of the cooperative. They use it for heating their houses with special boilers. Otherwise we sell it to large businesses. Perhaps they ship it and sell it to other countries. The issues is with water here, that is not recycled. Rather, it is evaporated. The water could be treated and used for irrigation. But we need to deal with the issues of the chemical oxygen demand. There are also antioxidants in the olive wash water, these antioxidant are valuable. Further the water is rich in potassium. It is much easier to let it evaporate for us.

**What is the capacity of the mill?**

In a good season we use 17 million kilos of olives, which would results in 4.5 million kilos of olive oil produced. The amount of pomace will be more or less similar to the amount of olives. Since the olive oil is extracted, but process water is added. In dry seasons the harvest will be lower, 70% or even 50%. But this year we are going to have a campaign of 14-15 million kilos. The leafs that are collected are used as animal feed.

**Do you have a contract with the extractors?**

I do not know about contracts. Before I payed for the transportation. But so far we do not have to pay for the transportation, the residual oil does that. The water in the pomace needs to be removed for the hexane extraction, which costs a lot of energy, and that costs them a lot. And that is the problem, they can pay you, but there is so much pomace that if they do not pay you, you cannot do anything else with it. You could go to another extractor, but if that would be 200km further then the transport cost would be higher.

Could you perhaps share some figures on the electricity and water use of the mill?

That sounds like a job for [name], he is the one who deals with these issues. I really do not know what we spend. We use a lot of water for the irrigation of the olives, and also in the process. But I cannot give you concrete figures.