**C3 - Interview second degree cooperative, Jaen - 11-11-2021**

**Introduce yourself**

[NAME COOP] is a second-grade cooperative, its members are cooperatives, and we are multisectoral. The most important activity is olive oil. [NAME COOP] has a turnover of around one billion euros. Olive oil represents approximately between 50 - 60%, depending on the annual production. Another important sector is *table olives*, which have a production of 80-90 million kilos, and about olive oil, our average production is around 200 tons, two hundred million kilos of oil. And well, besides, we have other sectors, such as farming activities, cereals, nuts, in short, supplies for farmers, phytosanitary, fertilizers, electricity, fuels, all that. All this is [NAME COOP].

Recently, we also started an activity about olive pomace management. I’ll tell you more about that, it is really new in [NAME COOP]. We are the first company in worldwide olive oil commerce, and we participate in two packaging companies. In both, we are around 50%. One of them is the packaging company we have for Spain, and for the rest of European countries, east countries and South American countries. That one is *Mercaolio*, and there we package around 80 million liters, and we also have 50% of what today is the leading brand in the American market, in the US, and it is the brand called *Pompeian*. There we package 60 million liters. Those are our numbers.

What we do is… our partners are first-grade cooperative, so they receive olives from their partners, they produce the olive oil, and once it is made, they make it available to [NAME COOP], and it is [NAME COOP] who sells all the olive oil. A fraction of that oil is packaged and sold in that way, while the other is sold in bulk, but all are managed by [NAME COOP]. We have around 100 cooperatives involved in the olive oil activity. And that’s a general view of our activity.

In the olive pomace… Olive pomace is a by-product that is produced in the olive mill, and we have to manage it, we have to make it useful in order to function, to make the factory keep working. Traditionally and historically, the industrial process of olive oil has changed over the last few years. Then, it has become much more respectful with the environment, and from the olive mill, it actually gives a residue that contains mainly water from the olive washing, and it is being managed by evaporation, depuration, or *fertirrigation* applied to olive trees, but in a very controlled way, as we are talking about really small volumes. The other by-product is the olive pomace, wet olive pomace. This changed a lot because olive pomace was easier to manage since in the past there was another by-product, which already disappeared, that was part of the olive pomace water. That disappeared as a consequence of the new processes. Now, everything goes together, now we have an olive pomace really wet, which has around 70% humidity. Until now [NAME COOP] hasn’t been involved in that, it was something that cooperatives. There are second-grade cooperatives or secondary mills that receive olive pomace from the olive mill, and they manage that olive pomace, or there are also industries or individuals, not cooperatives, mercantile companies where our cooperatives brought the olive pomace. And it is in this way how until now we worked. Some years ago, there was a secondary mill, which was a second-grade cooperative, that offered us to join [NAME COOP] and it did it. Then, we have a secondary mill in a town in Málaga, that is providing service to twenty-three cooperatives, I think. And there was another group of cooperatives that hadn’t solved their problem because they weren’t integrated into any cooperative for olive pomace management, and they had problems with the industry where they had brought them. Therefore, they asked us for [NAME COOP] to make a Project for them. Then, we organized a little secondary mill to provide a solution to those ten cooperatives, eleven cooperatives. That’s our relationship with olive oil pomace.

About olive pomace, until now, the only task we’re doing is receiving it. For the freshest olive pomace, as long as it is possible during the season, we centrifuge it to extract part of the oil, and the rest, the remaining part, that is dried. The water content is very high, and there are huge drying expenses, and with the remaining olive parts, the olive flesh, the olive pit is removed, and the flesh is left with all the fats, and then, we remove the oil… it is extracted like it is done with seed oils. The only oil that is not extracted because it is already a natural juice is olive oil. The rest of the oils have to be extracted using solvents. Regarding olive pomace, it is a type of olive oil that, except when it is removed by centrifugation as the first step, which is a small fraction, the main volume is extracted by solvents. That is the process that is currently being followed in olive pomace. After the solvent extraction, we get biomass, the olive flesh already extracted, without fats, and that is now being used as fuels, as biomass to produce electricity. So, there are companies that set up these power plants in the vicinity of the olive mills and the resulting product is burned there and produces electricity. I imagine that they have already explained it to you in other places the same, because the process is always the same.

Now we are receiving many proposals, we are being proposed many things about biodigesters, gasification, pyrolysis, but well, we actually have really little knowledge about these processes, we don’t know the efficiency of those processes. We know that there are many processes that were carried out, small projects, but we think, or we understood that, until now, they weren’t successful at all. That is the situation we have now in this sector.

**Then, [NAME COOP] has 100 cooperatives in Jaén, but also in Córdoba, Málaga…**

No, in Andalucía and in Castilla-La Mancha, but mostly in Andalucía. Also, in Portugal.

**In Jaén, here we have seen that the production method is the traditional one, smaller. Could you explain the difference with Córdoba, or Málaga, in terms of production method, land surface…?**

It is very similar, very similar. The olive tree has experienced a great transformation during the last few years. Here it is called a traditional olive tree, a really big plant, usually with more than one trunk per tree, you should have seen it, two or three trunks per tree, with a plant density of around 80 – 100 olive trees per hectare. Already in the 70’s, a new olive tree appeared, often in surfaces that were not dedicated to olive trees, but they were to cultivate herbaceous crops, such as wheat, sunflower, gaining land from those crops because profitability wasn’t very high here in Andalucía. They started planting at other times, removing older olive trees.

Here, the olive tree has been considered as a millennial plant, so it was a plant that it was set…. And over time, we have been treating the olive tree as a fruit tree. In this way, we got into an olive culture that… then, we moved to plantation densities between 200 and 300 trees per hectare, with only a single trunk, with a single foot, and easier to mechanize. But mechanization is still complicated because despite mechanization, workforce is still required. Then, this has more advantages than the first type of olive tree here, but it is still a crop that requires a lot of workforces.

Parallel to this, to this new olive culture, irrigation was introduced, drip irrigation started and that is the one that most contributed to this crop. And then, it generated a huge difference between dry-land and irrigated olive trees’ productivity. The irrigated olive grove is also very grateful because small amounts of water translate into a significant increase in production. Here we have many olive groves, which we call irrigated, which have 100 cubic meters per hectare, which is a very small amount for irrigation, but the olive tree, however, is very grateful. Then, we are still keeping a traditional olive grove. This traditional olive grove has been irrigated and production has increased on many occasions, and a new, more modern olive growing has emerged from those plantations both in dry land and in irrigation, and in recent years a new olive culture called *olive grove in hedge* has emerged, which started exclusively in irrigation, in irrigation and on very flat surfaces, where what consists of is not to make a plant but to make a hedge. This was based on an idea from vineyards, wherein vineyards moved from being individual plants to hedges, and where it was possible to introduce a machine to collect olives. Therefore, it has been the third big change that happened. And about the fourth, it is currently being produced in the dry land hedge. Hedges were exclusively produced in irrigation, but now it is known that it has advantages on dry land as well. It does not give as much production, but well managed it might become a potential alternative because it can improve profitability and reduce workforce, reducing costs.

Then, now we have a huge variety. Mostly, the most abundant is still the traditional olive grove, there is also an important fraction of intensive olive grove, and the super intensive olive grove is emerging. Everything is coexisting. Which is the difference? Well, the difference is that in those places in which the olive grove was less important, there are more modern olive groves. And in places where there were already lots of olive groves, then it is more difficult to change. In Jaén, for instance, the biggest volume is traditional olive grove; in Córdoba is traditional olive grove but also modern plantations; and in other regions, such as Portugal, Cádiz, Sevilla, mostly, or in a relevant way, there are new, modern plantations, and with those types of… Then, the difference is there. In addition, the system is based on olive mills, so it barely varies, and properties are small. Very big plantations are emerging, in big properties that were not dedicated to olive trees, but cereals mainly and, with the loss of profitability of cereals, here there was always an alternative based on one year of cereal followed by one year of sunflower, fundamentally on dry land. That, in terms of profitability, it has been observed that it is not feasible, so people started cultivating olive groves. Therefore, there are big properties that were not olive groves in the past, that were cereal crops, and that are turning into olive groves properties, and in those, the trend is to use the new olive culture, hedge olive groves, and when that has the opportunity to have water, then productivity becomes very appealing.

**Are those new properties in Jaén?**

There is everything in every place, but in percentage, in Jaén, as the entire region had olive groves, only a few old trees were removed and substituted by modern ones. The modern one has been planted basically in those places where previously there wasn’t any olive grove, but also in every place, there is everything… Some olive trees have been removed to have new ones, but as I tell you, here it was already full of olive groves, so not many of them were removed, they were there already. In other places in which there was a variety of crops, then there they planted new olive trees. Then, maybe traditional olive regions are those with the lowest percentage of new trees.

**Which role does the cooperative play?**

Usually, the cooperative has worked to achieve… Here, irrigation is very limited. It is a shame because it is very difficult to keep the competitiveness in dry land crops in Andalucía due to the weather conditions. Maintaining the profitability of dry land crops is really difficult. But I also see that there is bad water management. Water is badly distributed, and there are irrigated areas and dry land areas. The role of the cooperative has been many times to exert political pressure to achieve irrigation facilities, for example, but irrigation installations were achieved mainly thanks to farmers, not the cooperative. The cooperative wasn’t involved at all. Neither in the olive grove modernization process. The cooperative was mainly limited to offering services to farmers in terms of fertilizers, phytosanitary products, and technical advice about crops, treatments… That on one hand, and on the other hand to the olive grinding. To receive the olive and obtain the oil. Those cooperatives that do not belong to any group directly sell that oil; those that are integrated into groups let the oil available for the group and the group commercializes it. That process is very similar in the whole region of Andalucía and also in Spain.

**Explain a little bit about olive pomace. How much olive pomace is produced in secondary mills?**

So, from 100 kilos of olives, on average 20% is always oil, and the rest, olive pomace. Usually. Firstly, olive pits are removed, which might represent 10%, and then we would have an olive pomace that would be around 70%. Roughly, 20% would be oil, out of 100 kilos of olives, 20% oil, 7-8-10% of oil, and the rest, olive pomace, approximately 70-72%. Within that 70% of olive pomace, 70% is water and the remaining fraction, fat flesh. Roughly, those would be the numbers.

**Do you know the total volume?**

The total volume… If we have an average of 200 million kilos of oil, 200 million would be, thousand million kilos of olives, multiplied by 5… and 70% of that would be the olive pomace belonging to [NAME COOP], but that is not managed by [NAME COOP]. Around 700k tons, approximately. So, from that, every cooperative solves its delivery. Then, well, there are some important cooperatives. Here in Jaén, there is one, which is not cooperative, but it works as one of them, which is San Miguel, I don’t know if you know it.

**We went there last Tuesday**

You were with the president, [name].

**Yes.**

In Córdoba, there is a very big one, which is for the entire Andalucía and even for outside Andalucía. It is *El Tejar.* And then, we have one that is in a town in Málaga, *Fuentepiedra*. Now we got an additional one, and the rest belong to mercantile companies or to individuals that buy the olive pomace from cooperatives.

**Therefore, every cooperative…**

Each cooperative solves its problem.

**Regarding the secondary mill that belongs to [NAME COOP], what do you do with olive pomace?**

Exactly the same. We receive the olive pomace from these cooperatives, we centrifuge it as much as we can and extract part of the oil, the rest remains stored. Throughout the year, it is gradually taken and dried, and when we get that dry olive pomace, it is extracted using hexane, using solvents. And then, the oil is obtained. On the one hand, we sell the olive oil, and on the other hand, we sell the biomass usually to stations in order to produce heat or, well, lately many concrete factories are buying it; usually biomass is employed to produce heat for their drying processes, and usually they are power generation plants that burn it and produce steam. They heat water, and with that water, a turbine starts working, with the steam, and in that way, they generate electricity. There are also some secondary mills, such as San Miguel, that usually during olive pomace drying, as I told you it has 70% water content, water must be evaporated. Usually, that water is removed by heating, and the fuel used is the dry olive pomace. Then, a fraction of the dry olive pomace produced is self-consumed in order to dry the remaining part of the olive pomace. And there are some factories that instead of using dry olive pomace, instead of burning it, they do it using gas. Then, they use natural gas as fuel to make engines work, I guess you saw it at San Miguel. These engines make turbines work to produce electricity, and with the gas, with the heat from engines, with the exhaust gasses, olive pomace is dried. That is done based on the gas availability. So, they can use both options. And as I tell you, now, new ideas are coming up, but we have very little experience with them.

**We are interested in pruning rests, which is something that cooperatives manage.**

Pruning rests, what is currently done with them is that they are crushed and incorporated into the soil as organic matter. And when each farmer does the pruning to the tree, it forms pruning rows, and with a machine all that is crushed and left on the soil. It is a very positive organic matter supply. And those that are closer to the biomass utilization zone, sometimes, bring the rests to be used. Like the biomass from the olive pomace, it is used as biomass to burn it and produce electricity. That is done more often every time, but what happens is that on many occasions, biomass transport is more expensive than the value of that biomass. Now, as biomass is increasing its price, its use is becoming more appealing. But then the farmer has to decide whether he prefers removing the remains and using them as biomass or leaving them and incorporating them as organic matter. The key factor here is the distance; if you have a long distance then the transport is very expensive**.**

**Do you know any company that uses pruning rests to generate…?**

*El Tejar.*

**Do they transport biomass as well?**

Farmers can bring biomass. Some biomass is generated in the secondary mill. The secondary mill, during olive transport, also carries leaves; when olives are collected, at the same time olives are harvested, also some leaves are collected. Those leaves are removed during the cleaning process, and they are brought to these secondary mills as biomass to include them into the olive pomace biomass.

**According to you, what are the greatest challenges in the sector?**

The greatest challenges in the sector? Increasing worldwide consumption, that is the biggest challenge in the sector. Production is going to keep growing; olive groves are going to become more modern, and production is going to increase, and the surface of olive groves is going to grow; and together with that, we need to increase worldwide consumption, to make people know about olive oil all around the world. We think that we still have huge growth potential. What is more interesting to us is that, as we think that we already have the process quite developed, a great effort has already been done and is still being done in order to improve the oils’ quality, we are doing better oils, and even better every time, and this will continue. Environmentally, I think we have already kind of solved the problem. I think new technologies will be incorporated, some technologies will be ready, such as biodigesters to produce gas and organic matter, and combustion processes will be improved… Right now, the problem is that although it is biomass combustion, not based on fossil fuels, there are lots of combustions that generate huge emissions. They are not highly penalized as they use biomass, but I guess legislation will be harder with them. Then, I consider we have to look for alternative systems to combustion that generates fewer emissions. Today they do not exist. So, today… The advantage is that it is already replacing fossil energies, so it is favorable, it is positive. If we are producing electricity, heat, it is much better to produce it using biomass rather than fossil energies. Slowly we will find solutions that will reduce those combustions.

**According to you, what are the main challenges for farmers in the sector?**

Farmers? I think that right now, the most important part regarding the profitability for farmers is water availability, which is critical. If I had governmental responsibilities, my obsession would be increasing the water surface, irrigation surface, I think it could be used in a much better way. Here, we are in a dry environment, but it rains, but it rains unevenly between years and throughout the year. That needs to be solved with infrastructures. Water infrastructures to collect water when it rains to use it during dry periods are needed. I don’t know if in Brussels they understand well because the weather in Brussels is unstable, and in those countries where it rains a lot, they do not want to listen about water use policies because they don’t understand it. But for a farmer in this area, it is fundamental. Then, I think that the first great challenge for a farmer is water availability. The second big challenge for a farmer is the expenses of an olive grove. Today, there coexist olive groves with very different expenses. I think that farmers will have to gradually move towards more efficient and cheaper agricultural systems. I’m not sure if it makes sense to have olive trees that are 200, 300, or 400 years old, or 100 years old. Maybe now it’s time to think about a fruit crop that needs to be renewed. I think that people are starting to understand the olive grove as that type of crop.

**Does a two-hundred-year-old tree give less productivity?**

No, the advantage is that production is quite stable, but there are expensive olive trees that need a lot of workforces and are not easily mechanizable. Therefore, it is true that you lose some production, but not much. Productivity depends on water rather than plant density. The limiting factor in the olive sector is water. Then, you might have the same production, or slightly vary the production, on the same land and same quantity of water, independently you have a traditional olive grove, a modern intensive olive grove, or a hedge. Probably, productivity is somehow higher in hedge groves, but it is not a big difference. The main difference is the crop expenses. Maybe here, producing a kilo of oil will cost 2 euros and a half, in this one maybe 2 euros or 1 euro almost two, and in this one, 1 euro and a half. So, this farmer has to compete against this one, what is the trend then?

There is another emerging problem, workforce availability. The workforce is not easy; it is not always available. So, some factors force the transition towards this type of olive grove. This is going to be a long process and a mindset change. ¿Why is it not already done? Because people didn’t realize the productivity and cost differences yet.

**Is the workforce the main difference?**

Yes, then those are the main challenges for farmers. Also, achieve decent prices for olive oil. How do we get those decent prices? Here, the variability between one season and another, the productivity varies a lot, depending on pluviometry. Here, pluviometry variability between different seasons is very high, and production is highly dependent on pluviometry, so there are huge productivity differences between seasons. When production is high, prices plunge; when productivity is low, prices skyrocket. Therefore, olive oil prices also vary a lot. Besides, as the number of olive groves is increasing, maintaining decent prices is essential for farmers, especially for those who have higher expenses. Because at certain olive oil prices, the one who cultivates hedges can survive, but the rest not. Then, we must achieve prices to rise or be stable somehow and make them to better cover the profitability of the crop. We know we have margin; we are not talking about crazy prices; we are talking about the current levels. Last year, there was a normal harvest and prices were good; this year they are almost the same. The aim must be that the production growth should be correlated to the market demand, so we have to make a great effort to increase the consumption. We’re talking about the only fat in the world that is not extracted using solvents as it is a natural juice. We have many studies and much evidence of the benefits that olive oil provides to health. We have evidence and we have really good studies, and it is only consumed, a month, the total fats in the world, the olive oil only represents 3%.

**Is there any probability?**

For instance, what happened in the US? For us, the US is a very appealing market. In the US, consumption has been stable at 300k tons. This year of pandemic, with the increase of consumption at home, and with the consumers' perceptions of the olive oil as a healthy product, in only one year we went from 300k to 400k tons. There was a huge increase in consumption. This year, it is already decreasing a bit, but it won’t reach levels close to 300k. It won’t reach 400k, but maybe it will be 360k, 370k, so, I think that is mainly because of consumers’ sensitivity towards olive oil and health. And we have to exploit that, and also at EU levels. In the EU, it is barely consumed. We produce 80% of the worldwide production in the UE and it is still little consumed. It is not valued enough. We are not allowed to label products as beneficial for health, we are very limited in that sense. We should keep working. I think those are the big challenges. Water, modernization, and increasing worldwide consumption.

**You said that sometimes it is difficult to find a workforce, but we also hear that working in this sector is not very appealing for young people. Do you agree?**

Yes

**Is there something cooperatives are doing? Projects to engage young people.**

Well… young people that want to work during the season, they can work. The problem that working in the field has is that it is temporary, so it has a population that can work in a seasonal way, but they are going to spend many months without a job, therefore people look for stable jobs. As job offers increase less availability is left to this kind of temporary jobs. Then, well, as harvest is done in a really short period, it is difficult to find everything needed. So, well, for local workers, everything is alright. But from the cooperative what we did sometimes in the past was to organize foreign workforce. We brought a group of workers, we had them during the season, and once the season was over, they went back to their countries. But during these last few years, due to the policies we have here in Spain, that has been severely penalized, and it is not that easy anymore, rather the opposite. Then, here we have high numbers, and they say, “with that unemployment rate, we cannot afford foreign workforce”, so we say, “Where is the local workforce? Ah, I don’t know, in my list of unemployment I don’t have any”. But the truth is that we don’t have availability.

**Therefore, unemployed people cannot work in the field?**

Yes, but as they are receiving an unemployment subsidy, then working is not attractive anymore. They prefer receiving the unemployment subsidy. What do we ask for? Designing compatible systems to let people work without losing the unemployment benefit. But they say no, there’s no way. So, if it is the worker who chooses…

**Is the national government that manages all this?**

Yes, those are national policies.

**Here we have the concept we are working on, I also sent it to you by email. It is called biohub, and the idea is that here there are a couple of local communities that can provide biomass from residues, such as pruning rests, but also olive pomace and dry olive pomace, which can be processed here, in a biorefinery, where products such as biocarbon and biochar can be generated and used again here; and biofuels that can be used in the maritime sector. We are here to understand if it is possible to develop a system like this in this area.**

We need efficient processes for these processes. Once we have efficient processes, they will be highly successful. What does it happen? That we haven’t observed efficient processes yet. Because the ones we saw require huge investment for small volumes, and the result is not… I think that there is still little knowledge, so the idea must be this one, the future must be this, but we think there is still development missing, from my point of view. I guess that at the moment that is solved, everything will follow this idea.

**Have you already seen projects like this that were not feasible?**

We’ve seen small industries with huge investments, but maybe I’m completely wrong. And you can tell me so, you can tell me that I’m wrong because there might be some industries that succeeded, and I will say “wonderful news”, but I don’t know. Today we don’t have factories around us that we can see and say, “that’s the model, that’s a successful model”. Beginnings are always difficult. So, some reach us and say, “I can come here and build a factory to make you do this”, and I say, “no, build the factory, as it is a profitable and appealing process, as you say, but I am not investing on that…”. If you don’t trust in your investment, don’t ask me to do it. I don’t know if I’m being clear enough.

Another day, an Italian company came and told us to install biodigesters. We said, “Hey, perfect! Let’s see the numbers. You install the biodigesters, you pay us for the raw material we give to you at the same value as it is being sold for other processes and then you exploit the activity”. “Ah, okay, we’ll study it”. Well, now there could be people that are looking at this about unfeasible profitability thinking of European funds, the Next Generation… Now, I think everyone is lost about how those funds are going to be managed; there are some people that think that this kind of investment will be possible and that they are going to give an 80% grant. Is that realistic? I don’t know. Nobody offered us to build a factory. Maybe, someone told us, “I’m going to build a power generation plant, you commit to bringing biomass, I will pay you for it, and then I run the industry and produce electricity”. There are some interesting industries. Nobody offered that with these types of processes, what they told us is “I came here to convince you to build a factory”. How much does a factory cost? A lot of money. What profitability does the factory have? They don’t know what to answer. So, I think that this is the right way, but it is not mature yet.

**Are investments the problem?**

Yes. If I could find companies… If you tell us, “We have a Dutch company that is state-of-the-art in this type of technology and is willing to invest because with the raw materials you have there, with the organic matter, that makes it profitable, and it is going to be valuable. Do you commit to bringing raw materials?” Sure, of course.

**Is that the goal you want to reach?**

Yes, we are missing that. Right now, we are open to anything, receptive, but we don’t have any solution. There is another option we are investigating, that we want to develop, that is biomass use for animal feeding.

**Biomass from olive pomace?**

Our idea would be, that fat olive pomace, instead of extracting it to get oil, olive pomace oil, directly use it as a fat matter for animal feed formulation, and substitute animal fats and other types of plant fats by the flesh from fat olive. This is a project we want to develop, but we are there, very slowly.

**It is not still…**

It is good, for certain animal species it is very positive, but we must create consumers’ and feed manufacturers' confidence. We are working on that. I see a lot of possibilities there, in that product, I bet on that option.

**Which benefits do you think might generate a system like this in the sector?**

For us, all that involves managing by-products… we want the by-product to have the maximum value, obviously. If we find industrial processes that increase the value of our product, then we would be happy. It is clean energy. We have needs, organic matter, fertilizers; all this could be organic matter obtention, fertilizers obtention, and we have to manage the product because we want to make a profit. If we achieve a profit in this way… And we need energy, if we also achieve processes that additionally generate energy… because this is gasification, right?

**Yes, we are studying different processes. Also, pyrolysis, and hydrothermal liquefaction. That’s what we are studying.**

We would be pleased, but we know technological development is missing. We think so, but maybe I’m old-fashioned, and I don’t know, I don't know what you think about what I’m saying. I guess there are similar opinions between people from the sector.

**What barriers might it have?**

None. That the process is economically viable. Let's see, it involves an industrial transformation. It has to be very attractive because it means closing one industry to open another. Right now, the problem is solved, there may be better solutions, which is what we want, but those solutions have to financially compensate for the material of the product and the closure of the old factory. Closing a factory is also an expensive process, right? So, what difficulties are there? Well, it's a gradual process, set technology in, and make it work. And that this technology is able to pay... The olive pomace has a huge problem, which is the distance from the olive mill to the secondary mill, and as 70% is water, you are transporting 70% water. With the cost of transport becoming higher and more limiting, we need more industries, closer to the production areas. It is a key and fundamental factor. So, for us, everything that is industries of this type, that optimizes logistics, that improves logistics, and that values ​​the raw material, that is, the by-product of the olive pomace, and also that is more respectful with the environment, we are going to be delighted. Limitation? None. The only limitation that I see right now is the technical development and the necessary investments.

**Would you be willing to provide olive pomace to this new technology instead of to the secondary mills?**

As I tell you, it depends on the costs of closing a factory. It is something that should be done little by little. We would have to start where there is the farthest distance to the current transport centers, to the current secondary mills… There are places. In the last three months we have received many companies that have come to propose solutions of this type, but none have convinced us. Today, not yet.

**Because of investments?**

And because we haven’t seen the reality of the process, the profitability; we saw that everything is uncertain, barely defined.

**Finally, we want to understand the relationships between all the actors here in the sector and their position in terms of power and interest that they might have in topics like these. We would like to know your opinion if they are properly positioned if they should be changed…**

Well, I guess that the national government will be high and high.

**High in terms of interest?**

Yes. Junta de Andalucía, I see everything that is administrations here, in principle. I see producers, they don't have much power, but they are interested, I see them well. Oil mills and producers are in the same place because they are the same. I don't know what the academy is, the university ... I just don't see any limitations.

Transportation? Perhaps they are the least interested because if we improve logistics… But I think many of us would win. Biomass collectors... It depends, if you are going to give these biomass collectors a good outlet because in the end the biomass is needed, because I don't see them here, they can be here. Who is here? Transport. If logistics improve, transportation will decrease, and the current secondary mills are the only ones here. The others, I would leave them in this part of more interest.

Power is already more relative. Administrations here, producing sectors here, which is not that they have little power, they have power. And perhaps those that I would put here are transport, maybe, that it does not have to be like that, the current secondary mills.

**They have an interest in keeping the situation like this…**

Yes, of course, you are changing their business. Our interest would be here. I don’t know if we have a lot or little power, but for sure we have a lot of interest.

**Lots of interest and middle power… Okay**

I see myself there as [NAME COOP].

**Thank you very much. In the end, we have more specific questions. Maybe you might have a list with all the olive mills of the region and also with secondary mills. I don’t know if you have that information.**

There is an association of secondary mill owners, I don’t know if you are already in touch with them.

**Oh yes, with *Aneo***

With Aneo, with [name], and this is the association that represents everything. The only secondary mill that does not belong in Aneo is [NAME COOP], we are the only ones.

**Okay. I don’t know if you could help us to connect with some farmers in the area of Córdoba.**

I am an olive farmer.

**As everyone here. We have already visited some farmers, but none of them was intensive or super-intensive yet, and I don’t know if you could connect us with any farmer of this type.**

I guess it is not difficult. We have… but I don’t know your interest.

**We also want to know their perspective and know their interest regarding pruning rests and ways of cultivation… to understand their perspective.**

Well, we have a network of field technicians, advising farmers and we have a person who is responsible for these field technicians. That person could put you in contact with some of the technicians in the area, and the technicians with some farmers. I do not think it's difficult. You have already spoken with the first farmer; I am a farmer. Everything I've told you is from a farmer's perspective.

**Okay. Thank you very much.**

If you want, write down his phone number, [name] Rafael Romero. Let's call him.

But well, here in Jaén you have all the farmers you want.

**Everyone has olive trees**

The entire region of Jaén.

**We want to come back in March and organize a workshop with all those actors together in order to present our preliminary results to discuss different scenarios. Would you like to participate?**

Yes, no problem.

**Now we don’t have the details yet. Okay, thank you very much.**