**Fed3CF - interview Fedecafé – Male – Risaralda – 19-7-2022**

**… information. First, could you begin with a small personal introduction, and also for the organization and your role in Fedecafé?**

My name is [name]. I am part of the departmental coffee growers committee in Risaralda, part of the Colombian national coffee growers’ federation. My role is coordinator of the specialty coffee program and business management. My main activity is to help the coffee growers to administer their enterprises in a better way, for them to last and grow through time. Administration. The second one is to coordinate a human team, too, to generate added value to the coffee, based in its characteristics or through certification of the processes. That is also a goal, regarding specialty coffee. Right now we are in the testing lab, part of the departmental committee, with [name], who is our barista and tasting expert. This lab as a purpose to identify the coffee’s characteristics, or the flaws, in order to guide the coffee growers.

**So, coffee growers can come here with their samples to do experiments, to get to know the quality. Or how does it work?**

Coffee growers bring their samples. They are not charge for the cup results, results that tell them if it has flaws, if it has quality or attributes, or if it is an exceptional coffee. That means that it gets categorized, valorized. It is information with which the coffee farmer can correct its problems or get to realize what a good coffee he might have, so he won’t sell it to a regular price, as a commodity, but for him to get out of the standard market and to join a market that adds value to the coffee. As such, he will be able to reach the Federation’s goal. To improve the coffee farmer and his family’s living conditions.

**According to you, what are the challenges that coffee farmers currently face?**

I wouldn’t be able to put them in order of priority but, without question, a challenge is to face global warming because global warming has made the coffee growing areas to shift towards the higher areas. This has raised the pressure on water sources. We have challenges in the commercialization chain because the main problem is that we sell coffee for someone else to add value to it. It is such a big challenge that nowadays, we sell coffee three times higher and yet, you, consumers, pay the same value. That means that the chain has kept all of that cost without passing it over to the consumer. On the cost of producers. That is evidence of how one of the main challenges is to transfer more value towards the farmer.

**And how have you tried to achieve that?**

An example is everything I just told you. The way in which a lab characterizes coffee so it won’t go as a standard one but for it to be identified as a specialty coffee.

**The prices paid to producers that have specialty coffee is higher than…**

It is higher. This coffee you are drinking here, right now, doesn’t have the same price as a coffee in Starbucks. Or it shouldn’t. But in reality, Starbucks coffee, which is worse, is sold at a higher price than this one, which is extremely better.

**Is that so? Because of the marketing…**

That might help you realize the size of the challenge you are asking me to describe… What a challenge! It is like finding… Trying to move a ship with pulp. With coffee pulp.

**Is the federation currently doing something with the residues?**

They are used as fertilizer. As biofertilizer. All of the coffee plots have space for that residue to decompose, for it to go back to the crops. We no longer have water pollution from those residues going to the sources of water, since we have developed technology affordable enough to… We have reached 0% contamination. The technology we have allows for 0% contamination. In practice, we have managed for a coffee kilo to contaminate 400 square centimeters and 10 years ago it would have contaminated 4 liters per kilo. 4 liters. Now, for each kilo, 400 centimeters by modifying simple practices.

**All of your producers do it like that?**

The majority. That’s another challenge we have. We have administrative challenges because there are gaps regarding the capacity… on the academic level. Therefore, we have to develop skills so that the farmers know the production costs. We have challenges to integrate young people into the productive chain. A very big one. With that I have said 4 already, right? We have challenges.

**Why is it that the young people don’t want to work on the…**

Because, traditionally, it has been a not-so-profitable occupation, compared to the ones offered in the cities. Therefore there is migration form the countryside towards the city. And this corresponds to all of the crops. Therefore, the countryside has more and more aging farmer. The age average is larger and young people come to thicken the unemployment levels in the cities. Nowadays we have a very big challenge, the fifth… tell me?

**No, no…**

We need to fertilize in an efficient way, without depending too much on chemical fertilization. How to better use more residues to reduce the dependency on external fertilization. Fertilizers have extraordinary prices. Their price also increased 3 times with risk of not being able to obtained at all, due to the political issues the world is currently facing with Russia and Ukraine. A lot of problems.

**You have said that the young people are a challenge, to attract them to the sector…**

To involve them.

**To involve them. In what way are you trying to…**

We are involving them through other activities which are new for them. Not only to work the land, the soil, the crops but for them to integrate into the administration or for them to integrate into barista work, or for them to integrate into the toasted coffee with value generation. For them to stablish their entrepreneurship. Their own brands. We advise them for them to export. We advise them for them to become into tasters. For them to become baristas at stores. For them to become ambassadors of their families’ coffee in the exterior. How else? And with a project called “school and coffee”. Meaning that, since they are very little, they are taught to love for the countryside and farming, together with the government. The government and the guild fund the activities in schools, for kids, since they are young, to get to know coffee farming. And once they become older, they would be able to do this kind of ventures.

**Then, with the residues, is the federation doing projects, research, to do something with the residues or the crops’ byproducts?**

There is a lot of research. A lot.

**From the federation?**

From the nutritional level… Yes. We know the nutritional value of the by-products. It has been used as a source for animal nutrition. to feed animals with mucilage, to feed animals with the peels, to make fuels, and to make fertilizers. That is what we have investigated a lot. A lot. You go into the Cenicafé website and there is a lot of research.

**And from this research, have projects emerged to be applied?**

I already described the project for the generation of alcohol from coffee by-products. And a lot of enterprises have been developed around making biofertilizers from the pulp, with vermiculture, making use of worms. Therefore, there are small fertilizers factories that use the worm as a way to produce humus, starting from the peels. I don’t know… I don’t know about the peels being burned but I do think that it gets dry and gets burn. How to use the *pergamino* as a fuel for coffee drying was investigated. I will show you.

**Oh right, I’ve seen that in some plots.**

This one… These are the peels. The peels are dry. Here is the mucilage. It was washed. Animals can eat it. Pigs, it is for pig and bovine feeding. This is the *pergamino* and it has high caloric content. A lot of it. This is burned and air circulates through it, for it to get hot, and then goes through the humid coffee mass. The hot air volume displaces the humidity away from the bean. In 16 hours.

**16 hours?**

Under the sone it can take up to two weeks. Between one and two weeks. With sun it is between one and two weeks. With pergamino combustion it is about 12 hours. Natural drying versus mechanical drying. That’s the main use of the by-products. The coffee threshing material is used to dry it. And the peels are to nourish the plants.

**And the pulp then…**

The pulp is to fertilize. The honeys are to feed animal and even to make biogas. A little ago I met a cylinder that is loaded with pig manure, pig residues, but it is also mixed with the water used to wash the mucilage and it produces more methane. In plots, it is used to cooking. I am very imprudent by letting Simba go… What was his name?

**Siban.**

I was imprudent. Did my intervention make him uncomfortable?

**No.**

He just left?

**Oh, yes, because he doesn’t understand Spanish and I think that for him it is…**

**(Someone else) Daniel had some questions, regarding the event on the 28th so I think he asked him to answer them in the meantime.**

If I was imprudent, I’m sorry.

**No, no. He was not needed here so he was asked to step out for a moment to…**

I said what came to my mind.

**Yes, that’s right. No, no. There is no problem.**

**I would like to show you the concept we are working on, that we are investigating. It is called Biohubs and the idea is to… Well, there are many communities generating biomass that is not being utilized or that maybe is causing issues. That biomass is transported to a biorefinery, or several biorefineries, where that biomass could be transformed in different products. We are investigating a technology that can generate 4 different products. One of them is a biocrude, or a biofuel, that at the end could be used, for example, in the maritime sector but could also be used to make other things from it. Also a biocarbon, or biochar, that can be used as fertilizer in the soil or could also be used for water purification. It also produces biogas and water that can be used again in the factory. We are in Colombia to understand the whole context of the coffee axis. What are the residues, how are they generated, how are they being used and if it is possible to generate a new value chain from that biomass. Here I have some images of all of the things that can be made from that biocrude. It can be transformed into biofuels for ships, but also for planes, or it can be transformed into plastics and all of those things.**

Are you thinking on the see because this is being funded by maritime companies? Why is this directed to the ships?

**Because that sector needs to change because they emit a lot of things and, right now, they don’t have much alternatives. So, biofuels are the most viable alternative for them. Therefore, they are looking for new sources on how to generate biofuels. That is why this sector is a sector with a lot of potential for that. And we also see that a lot of the places in the world, that produce biomass that is not being utilized or is causing a lot of problems. We want to know if it is possible to combine these two goals. And, well, I would like to ask you what you think about this concept and what benefits could this bring to the region and to the biomass producers.**

The largest plots and the processing facilities… There are processing facilities where all of the coffee farmers take the cherries. They need of this project. When the volumes are small, they can be handled in the way I told you. But when they are too large plots of beneficio centrals that concentrate a lot of coffee, this is a great solution.

**Because these large plots don’t use everything for…**

Because it is too expensive to handle it. It is too expensive. It costs… It is a lot of weight. It is a mountain-like volume. It is mountains, mountains. It is a lot. It weights a lot and it has a lot of water. Therefore, I think this is a great alternative. Another way would be for the small ones to bring more coffee towards these plants. For their coffee to be purchased there or for them to be paid for their pulp, the peels. I think it is very viable.

**Do you know centrals like this? Because went to Belen and…**

There is a very large one in Belen. In Belen, there is a vermiculture project.

**It is big. Do you know other centrals like that one?**

In Antioquia there are several. In Antioquia there are some big ones. And in Chinchiná, close to here. Very close to where I farm. I am a farmer, too.

**So, in Belen and Chinchiná there are other…**

Huge ones. Huge ones. They are huge.

**And do they also accept the coffee from small farmers? Or…**

I have sold to them but they have very large plots. Very large ones.

**So, in Chinchiná it is not an association but…**

It is a private company but in Belen it is and association. I see a lot of viability in it.

**And you are also a coffee farmer? How many hectares do you have?**

I am part of a catholic community that has an association where we have set ourselves the goal to produce coffee in a sustainable way, with an agroforest system. The plot has 3 hectares. It is small but we integrate food production with coffee production. Or better said, the coffee production to the food production. Meaning it is a plot with a focus on food security rather than on coffee production.

**What do you do with the pulp in your plot?**

We take it to a roof, we move twice with a shovel, we mix it with all of the kitchen residues and we pack it in sacks and we use it to plant bananas.

**Then, there is a possibility to take your residues to… Would you be willing to…**

All of the possibilities. All of them. Of course, if you were to buy it… If you were to buy it, I wouldn’t use it like that. If you were to buy it from me, I wouldn’t use it. And I think it would be the same for everyone.

**But right now, it has a function. You make fertilizers with that. There is no…**

But if someone pays us better for it, we wouldn’t use it but sell it instead. How many do you want? All of the farmers would be in for it. The only problem would be the transport, because of the infrastructure. The problem is transport because it has a lot of water. A lot, a lot of water.

**Right now, the farmers take care of it, of the transport from their plots to the association. Do you think that the producers would be willing to take their pulp somewhere?**

All of it this is a matter of price. If you offer them something, they will take it. Therefore, it is not an issue.

**Do you see other challenges for such a system in this region?**

There are only benefits. I was thinking about the ships, since they are too far away and they need a lot of it, but this is completely viable because for big plots it is an issue and in small plots it can be an alternative.

**Do you think that the federation could have a role in such a new value chain?**

It is part of the goal in our mission.

**The goal in your mission?**

The goal is to benefit the coffee farmer and this would increase the income. Therefore, the answer is of course.

**And in what way could they take part in it?**

By organizing the people and promoting them to sell their pulp to the plant. What is needed is someone to set up the plant. To set up a plant. There should be many, I think, because there is a lot that needs to be moved. The issue would be the transportation costs. I think that the only problem would be the cost of transportation.

**Is the federation looking into projects like this? And to participate in new…**

I am sure they are. I am sure they are. I don’t represent all of the federation but I’m sure that a project like this one is very important.

**Do you also think that there could be… That it could harm or interrupt an already existing system or that it could have negative impacts?**

The contamination that the company could generate. That company must have by-products, I don’t know which one. But for us there is none. It would only be the residues or by-products from this plant but I don’t think there will be that many. Because what would come out of here would be an alcohol or a …?

**No, a biocrude.**

And the raw materials are plant matter?

**Yes.**

I can’t find any… I can’t imagine. I don’t know. I don’t think so.

**We also want to better understand the actors that currently have a role in the coffee sector and that could also have a role in that new value chain. We want to understand their position regarding the power they have in making decisions and influencing. Is it high or low? And what interest could they have in a new value chain? Is it high or low? I want to ask you if you can see these actors, their position and discuss on them. Are they properly located? Should we change them? According to your experience and your perspective.**

I think that between coffee farmers, researchers and the guild, which would be these three, we all have a high interest. We are all highly interested. Very, very interested. A lot. 100%, if this were to be percentual. We are all interested in producing… in expanding the product portfolio. So that a plot not only produces coffee but also a biofuel. No one would be against that. Why? Unless they are already selling their feels for brewing, but that is negligible. Almost no one brews them. They are alternative very… No. I think that all of us would be here.

**And about power? The position for power?**

I think that the most powerful ones are the coffee farmers, because they are the ones that have the pulp. Cenicafé doesn’t have it. They are not owners of the raw material. Nor the guild. Meaning that…

**So you see the position power…**

The coffee farmers are the ones with the highest power. The problem is that they are not aware of that power. We are not aware of the power we have. If we were aware of that power, most likely, it wouldn’t be you the ones reaching to propose this but it would be us the ones telling you to do that plant for us. What do you think about that answer?

**No, it is true that you have the required raw materials.**

But we are foolish. We are foolish.

**But it is more on…**

And the same goes on the commercialization level. Because why, if we are the ones with the coffee, would we have less power than everyone who makes money out of it? It is absurd.

**But that would be more in an ideal situation, right? On the real situation, do you think that the coffee farmer has that power? Also the small ones?**

What I’m saying is real, don’t you think? It is completely real. Coffee farmers have all of the power and all of the interest. And we can motivate them, guide them. We are telling them “of course, do it!”. And what can Cenicafé say? Of course. Of course. Why is that? Because it is known that that pulp is not sufficient to fertilize. The nutritional supply from the peels, are not considered within the nutrition plan for the crops. It is negligible. Imagine that. There would be no reason for science to say “don’t sell it, because you need it”. It is considered that all of the nutrients have to be purchased. Am I explaining myself? There is no reason.

**What do you think about the governments? Because right now, we have the national government with high power and low interest but what do you think about that? Is it true or it has more interest in projects like this one?**

Governments care about votes. Therefore, for sure they care, because this can provide them with prestige.

**So you give them more…**

I think it is ok there.

**It is ok there? And the regional government?**

Wait, sorry, sorry. Regarding power… I don’t think they have power to oppose but they might have power to help. They can oppose. They don’t have a way to oppose meaning that the power is only to help. No, no one. Yes, I think it is ok.

**And the regional one? The regional government.**

It might have more interest than the national one. I think it is ok for it to be there, more towards there.

**Are there actors missing?**

How complex is it for each one of these plots to have one of these facilities? Is it too hard?

**Yes.**

Are machines required? What is needed? What makes a machine to transform the pulp into a biofuel? What does that machine do?

**What does that machine do? Well, my colleague Siban is the expert on that but it is a technology that uses high pressure and high heat, and it requires of biomass with a lot of humidity. That is why the pulp is very good for this. It does the same process as the earth. It…**

It accelerates the…

**But in a short time, yes.**

Then, it is like an oilfield, with high pressure…

**And high temperature, yes.**

If that much energy is needed, it must be very efficient. Because it is a lot of energy and in top of that you have to heat it up. Another issue. There it is.

**Yes, that’s why we are investigating.**

It is better to take the plastics. They were already crude.

**Yes, but we need a lot of it. We need to investigate what are the possibilities.**

That is very good but I don’t think it is through that. It should be through the plastic. These Mexicans left me… they use to load the motorcycle with gasoline and when they turned on the motorcycle, it smelled like plastic. It didn’t smell like smoke, like a car. But since they were burning plastic, it smelled like plastic. But it was moving.

**Oh, right. But it also emits… it might not be that clean. Oh, right. I asked if there are actors missing in this grid, according to you, that should have a role we are not currently considering.**

Who might be missing… I don’t know. I think everyone is there. It is very good. It is very well done.

**Well, thanks a lot. Those were my questions. I don’t know if there is something else you would like to say or to add.**

For what I understand, it is a lot of energy consumption to produce energy. To compress and to heat. That is a lot of energy, right? A lot. It is a lot.

**Well, yeah, I’m not the expert on that but it is true we have to investigate if it is…**

I think we should melt plastic and transform it into crude. We are flooded. The problem is the solution.

**The problem is the solution?**

The plastics are the source of pollution. They are the problem. And those plastics are the solution. They are the raw material. The raw material. It is not about converting vegetables in crude if we are already flooded by crude in the form of plastics.

**Yes. Thanks a lot.**