



SEEDHEADS TRANSCRIPT

Episode 1: Lise Dubé et Luce Bisson French

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Hugo Martorell // Lise Dubé et Luce Bisson

Hugo Martorell:

Hey, welcome to SeedHeads, the cross-pollinating podcast where our Canadian seed heroes tell their stories, share their how-to tips, and talk about the seeds they love. I'm your host, Hugo Martorell, live from Tiohtá:ke-Montréal, on the traditional unceded territories of the Kanien'keha:ka nations.

Today, I'm talking with two women who specialize in grain farming: Luce Bisson, co-owner of La Ferme Aquilon in Sainte-Sabine in the Chaudière-Appalaches region, and Lise Dubé, agronomist for the Club de gestion des sols du Témiscouata in the Bas-Saint-Laurent region. In this episode, Luce and Lise talk about tartary buckwheat, the challenge of sourcing adapted seeds and varieties for so-called emerging crops and the potential of participatory plant breeding.

Hugo Martorell:

Welcome Lise and Luce to this podcast episode. I met both of you through the Participatory Plant Breeding Program that was created by the Bauta Initiative, in collaboration with the University of Manitoba. You are both doing on-farm breeding projects for oat varieties. To quickly summarize, the goal of the Program is to develop varieties that are adapted to your local conditions and growing methods. Would you like to introduce yourself and say a few words? Luce?

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Luce Bisson:

Hi Hugo, hi Lise. It's nice to talk together today about our experiences of the last few years and the many things we learned. I would like to add that my farm is in a region that has low growing degree-days, and that limits the choice of crops. It's very particular for us. We don't have a choice, it's our reality. We can't grow corn or soy on our farm.

When it's time to choose some crops, we're limited. A long time ago, even before we were doing organic agriculture, we bought a seed stock of green buckwheat. That's what it was called back then. That's what it was called in the early 1990s. One year, we didn't harvest many seeds, so we were doing some research to buy more seeds and that's how we learned that it was called tartary buckwheat. We hadn't known that before. It's a grain that's easy to grow. It's self-seeding, so we try not to use another field because it contaminates other crops.

Anyhow, that's how we started growing green buckwheat. We harvest a few tons a year. It's then grinded and distributed in the region, in Chaudière-Appalaches. We don't have very large areas in our region, but it's not too bad in the mountains. It's 80 to 85% woodland in our sector so farmland is precious. Maybe it doesn't have the same financial value, but deforesting is no longer permitted, so we take care of our land.

Hugo Martorell:

We'll come back to the green buckwheat story in a few minutes. I want to give Lise the opportunity to introduce herself. You're an agronomist in the Bas-Saint-Laurent region. You work with producers from all over the region. What motivated you to work in that field? Can you tell us a bit about your work? What does it entail?

Lise Dubé:

I've been an agronomist for 32 years. I was born in the region, and I still live here. It's a region similar to the one where Luce's farm is located. We also don't have a lot of growing degree-days. I work with producers. Some are organic growers and I give them advice. One of the things that came up often was the fact that some cultivars were not adapted to organic agriculture. Every time, people would mention that they weren't getting good yields and that it had an impact on their profitability.

It made me curious, and it still does today. With other partners, like the MAPAQ, I became interested in trialing new crops, like green buckwheat. Green buckwheat

was part of my childhood in a way, because I grew up in Dégelis, which is on the border of New-Brunswick. It's really part of the culture there. Now, they call them *ploys* and they're part of my childhood. So, without knowing it, I became familiar with this crop very young.

We conducted some trials because we wanted to enhance... We don't do that here, we grow corn and soy, but we wanted to enhance our land base. When we became interested in this, we asked ourselves: "Could we use those plants for nourishment?" Because more and more, there was talk of the population's need for specialty grains.

One day, I heard about participatory breeding. I thought it was interesting because you can select... Because that plant, if we draw a parallel with tartary buckwheat, it's a plant that seems to take on the characteristics of the soil in which it grows. So, in a way, that's the principle behind participatory breeding. I think it can answer the question organic growers ask me every time I meet them.

Hugo Martorell:

Lise, can you give us a bit of context around the Club de gestion de sols du Témiscouata? Was there a specific soil problem in the Témiscouata region?

Lise Dubé:

If we're talking about 2007, the Club de gestion des sols exists since 1998. Growers got together to discuss agri-environmental issues. If you recall, the grain situation was very distressing in 2007-2008, and a lot of agricultural land was abandoned in our sector. Those growers were really worried about that. We went into "research" mode to try to enhance the land there, to find more profitable crops to keep using that land.

We also... People were going from animal production to grain production. We wanted grains that would add value to the land. It's in that context that they said: "Yes, we're interested, and we'll support your ideas." That's why I was able to undertake projects on emerging crops and to do participatory breeding. They know that we're in a region that doesn't offer lots of possibilities for... When you're growing oats and barley, there comes a point where you don't have any crop rotations. That's why we started looking at emerging crops. That's why they supported me.

Hugo Martorell:

Can you explain what you mean by emerging crop?

Lise Dubé:

An emerging crop is a crop that is not regularly grown on farms and for which agronomical conditions are not definite or are still being studied. For me, an emerging crop is also one that has a market, but that isn't well-known or established agronomically. We don't know how it will react in a certain type of soil, or in certain growing, fertilizing or phytosanitary conditions. That's what an emerging crop is to me. We observe and check all agronomical criteria.

Hugo Martorell:

Luce, about 20 years ago, you acquired a bag of green buckwheat, of tartary buckwheat. Where did it come from? Why are you still growing that crop? Why? Can you tell us the story behind that bag of seeds?

Luce Bisson:

Yes, it's funny, earlier, Lise was talking about the distressing situation surrounding the price of grains. There is always a trigger to what happens to us in life. We make decisions based on situations. In the early 1990s, we bought a piece of land next to my father-in-law's property, and now, it's our farm.

My father-in-law's cousin was growing green buckwheat in our region and had given him the chance to buy his seed stock. Honestly, I would need to ask my husband how many bags there was. It also came with a client run. He was producing something like 1000 or 1500 pounds of flour per year. He had been doing that a long time. We didn't know him. We just met him; he was in the next village over.

He offered it to my father-in-law. My father-in-law told us about it since we had just bought our land. Finally, we said: "All right. Let's do it." We did it for many years. At one point, in the mid 2000 I would say, we stopped doing it after my father-in-law retired from the dairy farm. He took up the production, but it was always on the same land (laughs). We were always in the same little bubble. You see what I mean? My father-in-law had an accident, so, little by little, we started growing it again, but we didn't put a lot of energy into it for several years.

It's really the organic transition in 2016 that gave a new life to that production. When our son came to the farm to take over from us, he decided to expand the production. It's funny to think about, but a buyer asked for several tons of grain to make gluten-free beer, and he has now completely disappeared from the landscape. Our

son worked very hard on that. We had 10 acres. It was a lot back then, 10 acres. It's still a lot for green buckwheat because it doesn't always respond the same way.

When Lise was talking about emerging crops, we still don't have a lot of data on green buckwheat. In the end, the buyer couldn't pay so we didn't deliver. We got stuck with several tons of grain; several tons more than we wanted. We had to develop a market. When I say it's a question of context, it's...

Because he became organic, our son developed a market. Taking part in the Participatory Plant Breeding Program, also with Hugo, really showed us the importance of that grain. I think it's exploded in the last 2 years, the interest in seeds that are unconventional. We hadn't imagined to what extent there could be a market for it and the many discoveries that could be made in regard to what can be grown in our region. For us, green buckwheat has adapted very well. It's the same seeds that are planted year after year. We haven't bought any new seeds since 1959.

Hugo Martorell:

You were saying that growing green buckwheat was a market opportunity that didn't pan out because your buyer ended up not taking your stock. So, you thought about developing or transforming that green buckwheat. You thought about making flour. Can you explain what the final product is? What are the *ploys* that you mentioned earlier?

Luce Bisson:

In New-Brunswick and in the Matapédia valley, the product is called *ploys*. It's a small pancake. We call it a little fat pancake. We make flour with the green buckwheat. We don't sell the grain. We don't have a market to do that, even though we've had some demand in the last few years.

We just make flour with the grains, and it lasts much longer than it did 30 years ago because we can let it dry. We do humidity testing, and we know how to process it. It's also part of our learning. The grains become flour at 14-15% humidity. The flour will be good but will not keep. So, we dry it at an even lower humidity rate of 8-9%. The flour is a bit messier because it's more volatile, but it keeps very well. The taste and the properties remain intact.

Two years ago, in addition to the flour we've been producing for 30 years, we added two staples that are prepared in our region. If flour is produced, it's because it's sold and used in our region. Families around here all have a recipe for buckwheat bread and for *tireliche*. Lise talked about *ploys* before and it's probably the equivalent of

that, except that we flip the pancakes on both sides, and maybe the agents are a bit different.

Either way, it's similar. We were able to get recipes for both. People were happy to share their family recipes for buckwheat bread and *tireliche*. We started marketing a mix for buckwheat bread two and a half years ago. It's a mix of green buckwheat flour and white flour to which we add a packet of active yeast. It's sold ready to bake. We also sell a *tireliche* mix in a Mason jar. The dry ingredients are pre-mixed, and the only thing left to do is to add liquid. That's it. You get pancake batter, it's that simple.

We care a lot about recycling and reusing containers. I think that's also part of our organic learning. It's very successful. It's astonishing. Like everyone else, we've had difficulty sourcing containers because of the pandemic. But the product is in demand. We're talking with our RCM to... Well, we can't announce anything yet, but we want to identify that culture in our region... I think we can say that. It's not embarrassing to identify that as a heritage culture, even if we don't know exactly where it comes from.

We're going to do some research, maybe with Hugo. We'll find answers, with Lise also and others. I think in 2021, when we're able to go back 60 years, there is a lot of knowledge at our disposal.

Hugo Martorell:

Just to clarify, what's the difference between green buckwheat and black buckwheat?

Luce Bisson:

The green buckwheat plant is almost the same as the black buckwheat plant, except that it has a redder shade. When you see it in the field, the stems are redder, and they become very red in the Fall. The grain is at least twice as small as black buckwheat. Known varieties of black buckwheat are Mancan, Manor, Koto. I don't know them all. It's a bigger grain that's also smooth. More can be done with black buckwheat because the kernel that's used to make flour is bigger. It can be used to make sprouted buckwheat and other things like that.

Green buckwheat has a very small grain. It has a trigonal shape, like black buckwheat, but it's not as smooth and it's brown. Our buckwheat has horns. It's funny, I sent pictures to a few people. Not all seeds have horns, but between 10 to

15% have small horns on the side. It's a special characteristic that we would like to investigate.

That's for the exterior. In terms of flour, when looking at it when it's dry, there isn't much difference with black buckwheat flour, but as soon as it becomes humid, it turns green. That's why everyone calls it green buckwheat, because of the flour's greenish color. It's very green. Granny Smith green. Flashy green. The taste is slightly different, tasting a bit of hazelnut. The texture is also different, less granular, smoother. They're two different plants, but you have to compare them to see the differences. We're talking about two distinct buckwheat varieties.

Hugo Martorell:

You mentioned earlier that maybe your green buckwheat stock initially came from the tartary buckwheat that was cultivated at the end of the 18th Century in the East of Quebec, in New-Brunswick and in Maine. It was integrated into potato rotations and used to feed animals.

Luce Bisson:

It gave me courage to pursue my research, and lots of hope of finding the origins of those grains. Thirty years ago, we didn't have the genetic knowledge that we have today, that's for sure. It's a great tool to be able to learn about a grain's genetics to find out where it came from.

Hugo Martorell:

Lise, Luce's experience with buckwheat echoes the work you've done for many years in your region, trialing emerging crops, trialing varieties. Could you tell us what you learned from those years of trialing emerging crops?

Lise Dubé:

Okay. We focused on green buckwheat. We wanted to make a comparison with black buckwheat. It's a gluten-free plant. The demand was big for that a few years ago. What astonishes me about that plant is its resilience. I was surprised to see it could adapt to any type of soil, any conditions it was grown in, and the yield was always good. We always had a good yield no matter the conditions. We did trials on the farm of several producers in different types of soil and different growing conditions.

What I saw is that the plant adapts to the characteristics of the soil it grows in. It's fascinating. I thought it was fascinating. What's also very interesting is that it keeps its germinating properties over time. You don't see that at all with other types of

seeds. People sometimes keep the grain to replant it. Sometimes it will germinate, but in the end, the vegetative growth doesn't happen. There's no flower, no reproduction. But that plant has that power. It's really fascinating.

I was happy that researchers were studying this because in the conventional seed sector, we were considered a bit strange to take an interest in that plant. It's possible people laughed at us a little since it was a plant that didn't have much of a future, but we persisted and continued our trials.

Since it's not a popular crop or part of the agribusiness system, sourcing is very much about individual actions. About people who save seeds. Often, they want to keep their seeds, they don't want... It's something I see with emerging crops, because producers are doing trials and it's a lot of work. I have a lot of admiration for those producers, like Luce. It's rare to meet someone who will share their seeds or produce some for others.

With green buckwheat, it's difficult to find seeds. As an agronomist, it's my job to support producers and give them advice. When you can't produce or pursue trials at a larger scale... It's true we can conduct trials on small plots, but there comes a point where it's necessary to do it at a larger scale. We can't do that when we don't have seeds. We can't continue validating agronomical management. It's a big challenge. A very real challenge.

Hugo Martorell:

Yes, there are a lot of regulations for grains in Canada, and for good reasons since Canada exports a lot of grains. For example, Luce could not sell her tartary buckwheat seeds because it's not a variety registered through the Canadian Food Inspection Agency, and she isn't certified as a seed producer, which is another business model. Even when producing seeds on the farm, there are obstacles to sharing that genetic material.

Luce Bisson:

I think something is missing in the system. I understand the current seed system because a lot of research is being done, and there's a framework to ensure quality and a decent germination rate, clean seeds and guaranteed yields.

But at the same time, there's a big gap between what we're doing and the conventional seed market. No doubt I could sell my buckwheat, but I can't sell it as seeds. I can sell it, people can use it, but there are no rights. I can't give it a name. I

will give it a name. We have a project to do just that. We'll do it soon. It will be a small pleasure just for us, but there is a missing link in the chain.

We're working with the Participatory Plant Breeding Program. I've learned a lot through the Program in the last three years with our small oat trials. They don't always go our way. We're dealing with all sorts of things with our small plots, but we'll get results in the end. It's interesting work.

There's a vast knowledge, agronomical knowledge, that producers should also have. The plant's characteristics, its growth, it's all left to the researchers and agronomists. In the current system, the producers are like workers in a workshop: they plant what they're told to plant, following guidelines in terms of fertilisers and pesticides, and everything else. That should give them the result they're suppose to have and that's promised to them.

Beyond that, there aren't any resources. It's like someone that's learning to walk but only has highways to walk on. There are no other paths to explore. That's how I feel in the world of seeds. I think like Mrs. Dubé said earlier, people think we're crazy doing the work we're doing.

When we decided to vary our flour products, everyone was sort of looking down on us. We're sort of considered aliens when we want to do that. At the same time, part of society demands it, hopes that we do it and doesn't understand why we don't. Often, it's because we don't have any support or expertise to do so. That's a shame. We need the work the Program is doing. I'm referring to field crops, but it must be the same for vegetable crops.

Hugo Martorell:

You were saying earlier that this type of project doesn't fit in the current seed system. There's no doubt that producers are used to having very homogenous and stable varieties, and that leaves little room for genetic diversity on the farm.

Participatory plant breeding that involves producers and that encourages them to take back that knowledge is not without challenges. We're talking about doing selections on small plots, doing selections by hand. The process can take between three and seven years, without getting into variety registration. Lise, you started in 2013, what are some of the challenges you faced with producers to develop your own oat varieties?

Lise Dubé:

We gave a big push in three years, because we were doing it in small plots. After three years, we made observations. One thing that guided me was when people told me about seed capacities in organic conditions. The need for it. Weed management is very much a challenge in organic agriculture. It's one of the things that guided me when came time to do the selections in the Fall. I was selecting the plants that could compete with all those weeds.

We became specialised. Being specialised in agriculture is a good thing. It meets certain needs. When working with small plots and then wanting to reproduce that with bigger plots, the equipment is not suitable. It's not possible to plant seeds with a large grain planter because the quantity is too small and can't fill the bottom of the planter. We do it by hand or sometimes using a garden seed planter. But it's still limited.

If we want to treat just that plot, we can't really use a thresher because there isn't enough. The challenges come when trying to change the scale. We need suitable equipment. We need the equipment that research centers use when working on small plots. They have suitable equipment.

Here in the region, the CDBQ has that kind of equipment, but it doesn't come to the farms to harvest small plots. It would be nice for more people to be involved. Maybe we could have access to the kind of equipment that would allow us to grow our seed stock through farm-machinery coops. Otherwise, it's mixed with the rest of the field. It's hard. I'm telling you that after three years, the biggest challenge was moving to another scale.

On a personal level, I see that weeds are the main challenge for the organic producers I work with. Grains are grown in a short period of time. The seeds have to be planted quickly in the Spring. It's a short lap of time. It's not like in Europe where they have more time. There are cases where Europeans come see us and tell us we're crazy here in Quebec. We need to hurry in the fields to grow our crops. The plant is under pressure to grow, to go through its growing cycle.

Weed management is a very big problem in organic conditions. Doing selections based on that, I thought to myself: "It's probably a plant in good health if it can face all the climate issues and pest attacks, and not fall down at the end of the season." For me, those were the champions. They were the ones I picked, because of that for sure.

Hugo Martorell:

Something unique about you Lise is that you made selections on various farms. Each year, the seeds harvested on one site were planted on another site in the same region. Can you explain the rationale behind that?

Lise Dubé:

I didn't necessarily have any ulterior motive, but I did it so I could say... I'm in the same climate zone, I knew that, but I didn't necessarily have the same type of soil. I'm in the Appalachian Mountains, the types of soil have the same origin. I was telling myself that... Every producer has different growing conditions and works differently. I liked the idea of going there also. I thought it was a way to introduce the Program to several people, to share that way of working, to give a chance. It was meeting some of the needs I had identified with my producers.

I was also telling myself: "I think instinctively I was doing that." Maybe the scientists and researchers will think I'm wrong, but instinctively, I tended to do that. I thought that I could talk about the Program to several people, convince them to take part in it. Also, maybe it would give the seeds extra power. That's what motivated me, a bit like when I was watching the buckwheat adapting to the soil's characteristics.

I'm just a field agronomist, not a researcher. I don't have any scientific training other than my undergraduate degree. I was using my instinct, and I was also doing it to promote the Program, because I think it's super important. These are things that helped me develop my expertise to continually improve the services I offer to the organic producers I work with.

Hugo Martorell:

Luce, I think this is your third year of doing on-farm selections. I remember the first year, you explained that your son had harvested the plot at the same time as the rest of the field. That's one of the challenges when doing selections on small plots. Did you have any specific challenges during those first years of selections?

Luce Bisson:

You're right that the main challenge is to find a spot that is easily identifiable with the right soil characteristics. I work with oats in the Program. Of course, I won't plant my seeds in a field where similar oats could have been planted the year before. We agree on that. It's crucial to identify the spot so it's easy to find and to clean. On top of all the seed certifications, there are income security regulations to consider, because if you sow uncertified seeds, you're no longer eligible for crop insurance.

When there are no damages, it's good, but the day they request invoices and you don't have any, you need to prove you weren't able to buy seeds, that there wasn't any. There's probably something you can do to justify your decision, but it's not easy. There are a lot of obstacles on the path to choosing to replant your own seeds if you're trying to produce oats at a large scale. Buckwheat works well. Green buckwheat is not sold on the market, so it's not an issue.

Those income security regulations also stem from the **[unintelligible 00:39:34]**, from the Advance Payments for Crop Programs. That's the reality in agriculture and grain production. We can't get discouraged, there are solutions to everything. But it doesn't change overnight, we need to persevere.

Lise was talking about perseverance earlier. That's how we'll get somewhere. It must be said. You have a good platform to talk about perseverance, and about the pleasure of learning all that agricultural knowledge that we had probably forgotten, or that got lost through the years. We still have some learning to do.

Hugo Martorell:

I think maybe we could end with some words for the grain producers who are listening to this episode. What is the message we're trying to send about using one's own seeds for varieties that are not in the current system, for heterogeneity and seed sourcing? Do you have one last message for grain producers who might be interested in experimenting but don't know where to start?

Lise Dubé:

My message would be to take risks, to not fear your neighbours' judgment. That would be my message. I think more Quebec producers should get involved in the Participatory Plant Breeding Program. I would tell them: "Do it. You will learn new things. It will give you confidence in yourself and in your abilities."

Also, I think it's good to break the isolation, whether you're talking to an agronomist or other producers. I would tell them to try. It will give them confidence. They will acquire an expertise and develop their sense of observation. I also think it can help make our agricultural systems more resilient.

Luce Bisson:

Lise, that sums up my point of view also. I would add something. We're told to take risks, but there comes a point where that takes time and money, it takes the means to do so. Those little experiments I'm doing on my farm, I'm not only doing it for that. I'm also doing it for other crops. I would tell you it's all about passion. You need to be

passionate about it. You really need to enjoy it. See it as a hobby. Everyone has hobbies. Some people invest in a motorcycle, in a snowmobile, in golfing, in a boat, whatever.

On a farm, we often don't invest in any hobbies, but when we're passionate about something, it's less tiring. Even if it doesn't give us the right yield, if it's not profitable the first few years, we're learning and having fun. I very much enjoy what I do. The best kind of support we can find is to make friends who share our passion. Maybe that's one of the challenges, to communicate with each other. Ask someone. Try to find contact information.

It's not always easy to find the contact information of someone who seems to have done some similar work. But it's helpful, it gives us energy to keep on working. It brings us somewhere. The worst that can happen is that we fail or give up. The best that can happen is that we make nice discoveries and learn useful things. It's also good for our self-esteem as producers. We get the sense of working for us and not just for big seed companies. That's a big motivation for me.

Hugo Martorell:

There's no doubt that leadership among producers can help create those solutions and when individual efforts can become part of a network, we can find collective solutions to increase our genetic material and seed quantities so that products can reach consumers. I want to thank you Lise and Luce for our talk today, and for generously sharing your experiences with us.

Lise Dubé:

I would like to thank you for giving us this opportunity to share our experiences. I personally had a lot of fun doing it.

Luce Bisson:

It's an honor for me to see people sharing so much knowledge. That's how we'll evolve. Thank you everyone.

Hugo Martorell:

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