Narrator: Linda Malcolmson (LM)

Company Affiliations: Canadian International Grains Institute (CIGI), University of Manitoba, Canadian Grain Commission—Grain Research Lab

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Interviewer: Nancy Perozzo (NP)

Recorder: Nancy Perozzo (NP)

Transcriber: Sarah Lorenowich

Summary: Former director of special crops, oilseeds, and pulses for the Canadian International Grains Institute Linda Malcolmson discusses her career in grain research and marketing in Canada. She first recounts her father and grandfather's connections to the grain trade through plant and agrochemical science, and her own interest in food science in university. She discusses her PhD research work on durum wheat in the Canadian Grain Commission Grain Research Lab, and she shares the results of this inquiry. She describes becoming a professor of Food and Nutrition and the University of Manitoba and continuing her grain research on canola processing, and she also recounts the history of canola's development. Malcolmson then discusses her move to CIGI as the director of special crops, adding new equipment for research into pulse crop processing, and developing programming on special crops for emerging markets. She gives an example of program development with soybean growers groups, coordinating with growers, exporters, researchers, and customers to market the product. She shares some common experiences on each tailor-made program, like visiting farms, the CGC, and port facilities. Other topics discussed include CIGI's changes as a result of the Canadian Wheat Board's removal, challenges of not interfering in private company marketing, developing Canadian expertise in pulse crops, and the loss of government-funded science positions.

Keywords: Canadian International Grains Institute (CIGI); Canadian Grain Commission—Grain Research Lab; University of Manitoba; Grain science; Grain research; Food science; Nutrition; Grain varieties; Special crops; Pulse crops; Niche crops; Amber durum wheat; Canola; Oilseeds; Soybeans; Grain marketing; Grain processing; Oilseed processing; Pulse processing; Plant breeding; Grain export destinations; Grain buyers; Privatization

Time, Speaker, Narrative
NP: It is November 25th, and this interview is taking place at the Hotel Fort Garry in Winnipeg. I'll have our narrator for today introduce herself and her connection to the grain trade.

LM: Hi. My name is Linda Malcolmson, and I've just recently retired from the Canadian International Grains Institute [CIGI], which is located in Winnipeg. I was involved in the grain industry through CIGI for the last 15 years.

NP: Just the last 15 years? Okay. So, normally I like to start these interviews by talking about your very first connection with the grain industry. Were you a child of the farm?

LM: My grandfather was a professor at the University of Manitoba in plant science and was also the department head, so he had maintained a farm in Carman—which he used as a summer home—and we spent all of our childhood summer days at the farm. So, I had a very early interest in agriculture.

NP: So, your dad was a plant scientist, did he specialize in any particular--?

LM: Yeah, my grandfather specialized in barley, so he was instrumental in setting up the Barley Malting Technical Centre.

NP: Well, hm. So, did you take an interest in your family's history that you could tell us a little bit about what you remember them talking about related to the industry, especially the barley?

LM: Well, certainly I remember discussing with my grandfather how proud he was of the Canadian grain industry and how we had maintained quality in our grain, and therefore were getting good value when we exported the grain to overseas markets. That always kind of intrigued me that Canada was known for the quality of their grain. That was, of course, many, many years ago and something we've been able to maintain.

NP: Did you actually take part in any of the seeding of the crops or harvesting of the crops?

LM: On a peripheral I would have, of course, ridden the tractor and played in the grain as it's being delivered to the silo, but I wasn't really a farmhand, so to speak. [Laughing]

NP: And you were far beyond the stooking of grain, so you didn't have to do the hard-physical labour.

LM: None of that, just more of the fun. [Laughs]

NP: Can you think of how that grain felt or smelled or any memories of that that sort of come back? More than just an intellectual connection to the--.

LM: Well, I think, you know, I can often think of the smell of that grain and, certainly, the smell of that grain after it had been stored in a bin. So, certainly, all of those elements. And even the itchiness of the grain.

NP: Yeah. I find that a surprising number of people have allergies to—and in Thunder Bay where you had grain dust all over the place—that it really isn't necessarily benign for a lot of people.

LM: No, certainly, a lot of people suffered as a result of being exposed to the grain dust.

NP: So, your grandfather was involved in setting up the Barley--?

LM: The Canadian Malting Barley Technical Centre.

NP: Where's that?

LM: That's here in Winnipeg. Its role is to essentially monitor the varieties that are going into malting. So, at one time, they actually had a laboratory where they did the testing. They don't do that work anymore, but they are certainly instrumental in maintaining that malting quality of barley.

NP: Was it a stand-alone institution or was it associated with any larger group?

LM: No, it's a stand-alone organization.

NP: I should get a contact, maybe somebody who's retired that might be able to give us a bit more detail on that. Great. And your dad then became--?

LM: My dad was also involved in agriculture. He worked for the agrochemical company, so he worked for Dupont. Also, I mean, I would be influenced by him because I can recall one time when there was an outbreak of a particular pest in one of the grains, and my father had to make a decision about making sure that this chemical was available to counter this pest. It was a very stressful time for him, but it, fortunately, worked out and the crop was saved. It was one of those situations that was this pest had come in and it was new, and they weren't sure if this chemical would work. But it all worked out in the end.

[0:05:45]

NP: Did you pay much attention to your dad's work? I know I didn't. [Laughing]

LM: Yeah, as a kid you sort of know about it a little bit, but I don't think you're that involved. Yeah.

NP: Did he ever say what he liked about his job, what he didn't like about his job?

LM: I think one of the things he didn't like about the job was that people were always saying that these chemicals weren't safe. He was always trying to educate people that they had undergone lots of testing and they were safe if they were used properly. I guess that was the big issue were people using the chemicals under the right situations. Yeah.

NP: Did he stay in that career for his entire life?

LM: Yeah, he did. He only actually worked for two companies. His latter part was with Dupont.

[Audio pauses]

NP: Okay. Just paused a little bit to check out the volume. Could I just have you say another couple of words?

LM: Certainly, I can say a few more words for you. [Laughs]

NP: Okay. So, we met way back in university days. Did any of your early childhood have an impact on what you eventually chose to--?

LM: Well, I made the decision when I went to college to go into Home Ec, but my uncle was a professor in Ag Engineering. So, you see agriculture was all around it, although I didn't choose to go into agriculture. But I recall having a discussion with my uncle who said, "Why don't you go into food science? Because people always need to eat, and you're guaranteed to have a career." It turned out that I did have a strong interest in food and understanding the science of food, and so that's what I ended up studying. From there, I ended up doing graduate work, and did all of my research on grain, particularly with wheat, canola, and also pulses. Then, shortly after that--. **[…** ***audio skips*****]** To CIGI, here in Winnipeg, and I saw this as a great opportunity to combine that food science with the grain industry and agriculture. It turned out to be the right choice for me.

NP: When you started out in home economics—because it's a fairly broad area of study, with the food and nutrition being a major part of it—did you have any preconceived notions that were either borne out or--? Did you know what you wanted to do? A lot of people go into university and think they're going to take one course, and then over time things sort of shift for them.

LM: I think when I first entered, I wasn't really sure what I would specialize in, but as I mentioned already that my uncle did have that influence on me, as also did one of my professors who taught in the foods area and the nutrition area. I knew where I wanted to go.

NP: How would you describe the difference between the course of studies in home economics versus the course of studies in food science?

LM: Well, I think in those days the differences were that in the home economics area there was more about the individual in terms of nutrition and the food, whereas in food science it was more about the processing. So really, for me, getting education in both areas really helped me.

[0:10:08]

NP: Tell me a little bit about—well, tell me a whole lot about—your studies and what you found out about the grain industry, the grain products, as you dug deeper.

LM: Yeah. Well, my area of study for my PhD was on durum wheat, and there I was looking at the effect of both varieties and environment and quality--. **[…** ***audio skips*****]** Like common wheat in terms of how that affected the quality of end products being made from it. So, in that case, it was focused on spaghetti in particular. That just opened up that whole area for me of the role of breeding and environment of growing plants and how that influenced end quality. That was something that I have basically continued throughout the rest of my career.

NP: Now, did you finish your PhD here, or did you go--?

LM: No, I did my PhD actually here in Winnipeg, University of Manitoba, but all my research was done at the Grain Research Lab which is part of the Canadian Grain Commission [CGC]. So, right when I started my PhD research, I was really much more involved in the grain industry. That was really how the connection got made, I think.

NP: Tell me about the Grain Research Lab.

LM: So, the Grain Research Lab at that time was doing a lot of--. **[*… audio skips*]** By the grading standards. So, for example, if a grain was degraded because of frost damage, how did that affect end quality? So, I found that was a very rewarding time for me because although I was conducting my own research, it was, of course, by being right in their facilities and interacting with their scientists and technicians I was learning a great deal about how grading factors influence quality, and how Canada would find solutions to the end user of that grain to make sure that they got the best possible quality of the end product.

NP: What sticks in your mind about your work at the--?

LM: **[*… audio skips*]** Of the scientists that work there. They had a tremendous influence on me, not only as mentors and teachers, I guess, but also their commitment to the Canadian grain industry. They worked very hard on their research, but they also travelled on behalf of the grain industry to conduct seminars in customer countries and to talk about the quality of Canadian grain. So, I really saw how the Canadian industry worked together to sell the product.

NP: Was there official connection between the producers and the Research Lab?

LM: I think, certainly, the scientists also attended producer meetings, but I would say that that wasn't their major focus. I know, certainly, now that that is getting much better.

NP: My understanding, in talking to some people who were familiar with the Grain Research Lab, that the scientists there were actually world renowned. Is that your impression too?

LM: Definitely. Because when I was selecting where I would do my PhD, I actually decided that that was the best place for me to go because I wanted to study in the grains area, and I really didn't need to leave Winnipeg—but I did need to go downtown to the Grain Research Lab. I mean, a lot of those scientists have now retired, and, I mean, there are some very good scientists there since replacement. But, certainly, at that time, which was the late '80s, unbelievably top-notch scientists.

NP: Were there some that stand out in your mind as--?

LM: Yeah. There was, certainly, Dr. Matsuo, who was durum wheat--. **[*… audio skips*]** James Dexter and Dr. Ken Preston were also very, very highly regarded.

[0:15:12]

NP: Were they from around the world or were they mostly Canadian?

LM: They were all Canadian scientists—trained in Canada as well. There was also Dr. James Daun, he was in oil seeds. He was also very well known.

NP: Interesting when you're talking about that time period and the fact that the scientists there were Canadian-trained, if not Canadian-born, because in talking to some of the older folks, of course, the Grain Research Lab was populated by, in many instances I guess, people from Britain, where the--.

LM: Yeah. Dr. Keith Tipples was the director when I was there, and he was originally from Britain.

NP: But a real changeover in being able to have homegrown people.

LM: Yes.

NP: Would most of those have been trained at Prairie--?

LM: **[…** ***audio skips*****]** Prominently. Not necessarily University of Manitoba, I know. That would make sense because only really the Prairie provinces would have a cereal chemistry program.

NP: Was there any connection—official or otherwise—with eastern Canada, or was it pretty much western-based because of the--?

LM: I would have to say it was probably more western-based. Yeah.

NP: When you went there, did you take a position or were you, since you were doing your research, you just went and used their facilities?

LM: No, I was a graduate student, so I did not hold a position, but they were very open to having graduate students working in their facilities. It was a tremendous opportunity for someone like myself to be there, very different environment than being at the university, but in other ways not because it was a research lab. **[…** ***audio skips*****]** Exposed to really what was happening on the frontline. Like when you're in an academic environment, you don't necessarily have that interaction with--. I mean, there was

always visitors in the lab from various countries—whether they were other scientists or potentially customers or people from a large mill or bakeries or what have you from around the world—so those were opportunities for me to see that happening. Also I would hear about what was going on in the grain industry, if there was an issue that year and how is Canada going to deal with it, that kind of thing.

And also, just things changed over that period of time where certain countries became more prominent in terms of where they were selling to. So, for example, when I first arrived at the lab, that was the change of Russia was no longer the number one buyer of Canadian wheat, and it was shifting to--. **[*… audio skips*]** That evolution had happened.

NP: So, you had mentioned that your main area of research was in the durum, and spaghetti in particular, to my little Perozzo-adopted ethnic heart. [Laughing] So, did you have any connection, then, when you were doing your research with the major durum buyers, which would have been--?

LM: Well, a lot of it goes to Italy in those days. Not so much during that period. It wasn't until I started working at the CIGI that I had much more direct involvement with customers.

NP: Describe a typical day, if you can, in the life of a PhD student researching grain.

LM: Well, it's probably very similar to any other graduate student in any lab. You start your day with running experiments and--. **[*… audio skips*]** But I think one of the things that was maybe a little different was I used to have coffee with all the scientists every day. In those days you could actually use a Bunsen burner in the lab and make coffee. Of course, this doesn't happen anymore, but.

NP: Did your view of the Canadian grain industry expand over that time? What did you learn about the broader industry just because of--?

LM: Well, you know, I think where it really broadened was when I started working at CIGI because that's when I had the opportunity, as I said earlier, to meet with customers, and to get to know some of the other industry players and better understand their role.

[0:20:29]

NP: Well, let's go onto that later, but--. **[*… audio skips*]** What was the outcome of your--? What were you hoping to find, or your hypothesis, and what were the results?

LM: Yeah, I mean, what we found in that work was that, certainly, depending on variety, depending on environment, depending on protein levels, this had a tremendous influence on the end-product quality of spaghetti. I also included some processing variables and how that might affect--. So, in other words, if you started off with maybe poorer quality durum wheat, is it possible to achieve good quality just through manipulation of drying temperatures or processing conditions? I was able to show that, yes, in fact, you could influence it. So, it's not all about the quality of the grain necessarily, but certainly that helps.

NP: And what about the blending?

LM: **[*… audio skips*]** Has good quality but you could tweak that with processing and achieve better quality.

NP: Do you make your own spaghetti?

LM: I do not. [Laughs]

NP: Have you ever? [Laughs]

LM: Yeah, I have. I certainly have. Even since the days of making it in the lab, yeah.

NP: From what you learned about, we'll stick with spaghetti, but other pastas, how does that translate into what the customer buys? Like when you go to purchase spaghetti, since you aren't making your own, what do you watch for and--?

LM: Sure. Well, one of the things I definitely watch for is making sure that it is made with 100 percent durum wheat. If it says it's made with Canadian durum wheat that all so much the better—and that's not just because I'm nationalistic. I also know a little bit about some of the processors. So, I know which ones are using some of that more advanced processing, so I know that even if I cook the spaghetti improperly, I'll probably end up with a good quality.

NP: And you have your favourites? Not that I'll necessarily ask you to—you could say which ones—but--.

LM: Oh, sure. I mean, I think it's like anything, you know which ones to buy.

NP: I can recall someone saying—again this was a person who was talking about off the shelf products—she was talking about chicken broth because a lot of people weren't making their own soups because it was such a hassle to make the chicken broth, and

she was asked the question, "Well, is there something out there that you could buy that is a good product?" She was not willing to say which product it was, but she did say it came in a red tin. [Laughing] It was just a sort of run of the--. **[*… audio skips*]** Of what she knew about the quality, so. So, can you buy good quality pasta without having to go to a boutique?

LM: Yeah, most definitely. A lot of the industrial made spaghetti is very good. The biggest mistake consumers make is they don't cook it properly.

NP: Well, now is your chance to tell us how to not kill the product. [Laughs]

LM: You should follow package instructions, which usually tells you to use, I think, a ratio of 10:1 water to spaghetti—most people don't use enough water and they overcook it.

NP: Yes, so al dente.

LM: Al dente.

NP: Yes, yes. [Laughing] Well, we can't talk to a home economist without throwing in some helpful cooking hints, right? [Laughing]

LM: That's right!

NP: You mentioned that looking for Canadian durum because our durum is a high quality. Now what creates that high quality in the initial ingredient and why does Canada manage to produce that?

[0:24:59]

LM: Okay. So, one of the more critical things is the protein level, and Canada has varieties that lay down quite a bit of protein. It's also the strength of the gluten—again part of the protein—and also the yellow pigmentation of the durum wheat, so that you're getting a desirable colour in that spaghetti or pasta, whatever you're making. So, it's really about protein and it's about the colour. I think the other thing too is we figured out--. I mean, we have the right growing environment, and that's why those protein levels are as optimum as they are.

NP: And my understanding from talking to others is there are certain places on the Prairies that are better than others. What creates that? What creates the growing environment that produces the protein?

LM: Well, it's the areas of Saskatchewan in particular, and it's a relatively dry area of production, so it's not too wet.

NP: The wetness would create an imbalance in the--?

LM: Yeah, it's a situation of you don't want too much--. It's a disease thing as well as getting the dry conditions for protein level.

NP: Okay. So, what years were you doing your doctorate? What was your master's thesis in?

LM: My master's was in I looked at protein concentrates from fava bean and canola—was ahead of its time because it's just now that people are starting to look at fractionating grains to concentrate the proteins or concentrate the starch.

NP: What do you mean by fractionating?

LM: So, there's two ways of fractionating. You can fractionate dry, which means that you grind and then you air classify. Essentially, when you air classify, you're running a stream of air into the flour and smaller particles go one way and the larger particles go a different way.

NP: Similar to a sifting processing except using air instead of grates?

LM: Right. So, what happens is the larger particles tend to be the starch and the larger particles tend to be protein. So, nowadays, people are looking at—because there's such a demand for vegetable proteins in the world—they're looking at ways to replace, I guess, for example, soybean isolates and concentrates because lots of people have allergies to that or choose not to consume soybeans for whatever reason. So, there's more work going on at looking at use of other high protein sources of grains.

NP: Are fava beans grown in any quantity in the Canadian--?

LM: No, they're not grown in large quantities. There's a great deal of work though going on in Saskatchewan in terms of developing varieties because they're a very high source of protein.

NP: Now you mentioned canola in the same breath, and I never thought of canola as being a protein.

LM: But it is because the by-product is meal, which is high in protein once the oil is extracted.

NP: Now, I don't know if I lost track of what you were saying, but you said one way of doing it was with the air fractioning.

LM: Okay, another way is wet classifying. So, it's just a matter of distilling out or settling out. So, it's the same concept of getting the protein separated from the starch.

NP: Just with water?

LM: Yeah. Well, solvents.

NP: Solvents. Now whenever you say a thing like solvents, I get a little--.

LM: Yes, of course you do. [Laughs] So, that's why the dry process is the more preferred way.

NP: What would be the solvents?

LM: Well, a lot of times it's water, but sometimes they have to do some washing to get some--. **[*… audio skips*]** It would be alcohol-based.

NP: Okay. Well, could be worse. [Laughs]

LM: Yeah. They don't do anything worse. [Laughing] But both processes are expensive, right? So, that's why you don't see a lot of it being used on everything.

NP: Mmhmm. You mentioned a lot of people being allergic to the soy protein and therefore looking at others like the canola and the fava bean. I don't know if you feel qualified to even comment, but we hear a lot these days about gluten intolerance and wheat protein problems. Do you have any comments to make on that? Has there been a change in the breeding of plants that it becomes more of an issue?

[0:30:03]

LM: No, it has nothing to do with the new varieties of wheat. I think gluten intolerance has always been there. It's just we're better able to detect peoples' sensitivities to it. And there is, certainly, a small percentage of the population that cannot tolerate gluten in their diet, and they should get diagnosed for that and avoid it because over a long term it can have health issues. I can tell you that the food industry is certainly looking at this. There's many more gluten-free alternatives out there for consumers. They're also taking seriously the fact that it isn't just about making a product to get it on the shelf. They're actually looking at the nutrition of those products, so there's much better alternatives out there. I mean, the early days, for example, of a gluten-free cracker was pretty much starch and that was it, but now they're looking at making sure there's fibre in there and that there is some minerals.

One of the things people don't realize if they take wheat out of their diet, wheat flour is enriched. So, the B vitamins are placed into that flour. It's a major source of B vitamins for the average individual. So, when you start removing wheat, flour, from your diet, you're also removing a valuable source of minerals and vitamins. People need to be aware of that and make sure that they're getting those elsewhere in their diet. And I think people just think it's as simple as just, "Well, I won't eat it," but they don't realize they're also leaving nutrition on the table.

NP: What years were you finishing up your PhD?

LM: It was late--. It would have been '89, '90, in there, '91.

NP: '90. So, what occurred between finishing your PhD and then the last 15 years when you were working in--?

LM: Before doing my PhD, I actually was teaching at the University of Manitoba in the Foods and Nutrition department, and then took a break from that and completed my PhD, then went back and again was a professor there. Then, as I say, about 15 years ago, I made the change from being a professor at the university to working at CIGI.

NP: Your time as a professor--.

LM: Mmhmm. [Laughs] Well it was a great time.

NP: Highlights?

LM: Highlights? Yeah, it was a great opportunity for me. My research there focused on, again, it continued. I always worked on the grain. So, I did a lot of work in those days on canola oil. In particular, that was about the time when canola oil was, certainly, had already become the main crop that was being grown. Rapeseed was phased out and canola had taken its place, but one of the things

that it was criticized for was they felt, given its fatty acid profile, that it wasn't a very stable oil with storage. So, my work focused on looking at the storage stability and the frying stability of canola oil—so very practical research. The sort of thing that customers needed to know if they were going to switch say from soybean oil to canola oil, or from cotton seed to canola oil in a frying situation. What kind of fry life would they have and what kind of storage stability would they have on their fry product?

NP: Now what would ordinary consumers think of stability as? It would not be a term that would come to their minds for, "My oil isn't stable."

LM: Yeah, I don't know if the average consumer would know at all what we meant by that, this was more, I think, for processors. I think most consumers don't reuse their oil, so it doesn't really mean the same thing to them.

NP: So, what are the impacts on a processor using an oil? What happens when it's not stable?

LM: Well, if it's not stable, they're going to have to replenish their oil. For example, in a frying situation, if the oil is breaking down during frying, they're going to have to replenish the oil more often, it's going to be more costly. If the oil that's absorbed by the fried food isn't stable in packaging situations, then they won't have as long a shelf life. So, it has a huge impact on processors.

[0:35:07]

NP: Is it mainly a question of what we would call going rancid?

LM: Yeah, painty, rancid, that type of thing. The interesting thing we found in the work was that although the fatty acid profile would suggest it's not a very stable oil, it did actually have fairly good stability. I mean it's not indefinite or anything like that, but it was much better than you would have thought given the fatty acid profile. So, the work showed clearly that it could be used in a frying situation.

NP: Couple of things come up as a result of what you just said—or come to my mind. One is your commenting that rapeseed was replaced by canola, where, in speaking to a lot of people in the industry, they just pass it off as being a change in name.

LM: It was much more than a change in name, and that's why there was a change in name to distinguish it. Rapeseed oil was the first oil--. The reason rapeseed even came into being, in terms of growing in Canada, was during the war it was found that Canada did not have an oilseed crop that could supply the Canadian population. So, at that time, certainly, we were growing soybeans, but soybeans at that time could only be grown in Ontario and it was only a fairly small quantity. So, if we ever were in a situation

where we needed more fat, we had to rely on imports. So, research began at looking at rapeseed because it appeared to be a crop that could be grown in western Canada. The problem with it was though it had very high levels of one fatty acid called erucic acid, which is harmful to human health, and also had very high levels of a compound that if we were feeding the meal—which is leftover from taking the oil out of the seed—to animals was toxic to them, consumed. So, great breeding went on to basically replace and lower those levels. Because it was such a marked improvement, that's why the name change.

NP: Over what length of time would it have taken to get from something that was toxic to something that was--?

LM: You know, I think it was probably a 15 to 20-year--. It usually is the one cycle of varieties, 10 to 15 years.

NP: Would that be the kind of thing that genetic modification would be looking at speeding up?

LM: Yes, but in those days, it was all done through traditional breeding practices, and really, in the end, there was just a couple of people that worked on that and yet it's evolved into--. Well, it's the Cinderella story of--.

NP: So, who were the people that worked on it?

LM: There was Baldur Stefansson at the University of Manitoba and then Keith Downey, who was with--. **[*… audio skips*]**

NP: What were the origins of rapeseed? Where did it come from?

LM: Europe, I think, was the original.

NP: At the time when Canada was discovering that it didn't have an oilseed crop to provide those really concentrated calories, what was the major competition for that? We'd have to import. What would we be using?

LM: Well, we probably imported a lot of probably soybean oil from the US, would be my guess.

NP: And why, when you said at the time soybeans were only grown in Ontario, what was it about Ontario versus the Prairies that--?

LM: Well, the original varieties that could be grown were all from the US. Their climate is obviously quite different, so the small area in Ontario right along down to Windsor was where soybeans started to be grown. Of course, those varieties adapted well to that area, and that would have been in the '40s. Then, as new varieties came on—Canadian-made varieties—that growing region

expanded upwards in Ontario, and then started to be grown also in Quebec. Now, we have varieties that are short season, which means that they can be grown in more northern parts of Ontario and Quebec, and as well as in Manitoba. I mean, Manitoba has a huge amount of soybeans being grown now. It's basically replaced other crops because of the success they're having with soybeans. I would say probably 15 years ago nobody believed soybeans could be grown in Manitoba. So, it just shows you how agriculture continues to evolve.

[0:40:37]

NP: To the same extent as canola has proven, would canola still be the oilseed of choice?

LM: I think, yes, because canola, as it turns out, has one of the healthiest nutritional profiles. I mean, some would argue that soybean is also—it is quite a healthy oil—but if you look at the fatty acids, the level of polyunsaturates and monounsaturates, it still is ahead of soybean, although new varieties of soybean are being released that have improved nutritional quality, so.

NP: Now, when you say that canola was a Cinderella story, did you want to add anything to that beyond what you've already said about what happened?

LM: I think it's just quite remarkable that it was the work of so few to develop the crop canola. **[*… audio skips*]** Millions, billions of dollars. So, I think, it really warrants having a special mention.

NP: We can move on then, I think, to--. Unless you have anything more to add about those university years?

LM: No, I think, that's--. I mean, I think I went from canola to pulses in terms of my work, but a lot of that work I was just starting when I left. It was something I was able to pick up when I--.

NP: And what was the research related to pulses?

LM: Well, at that time, basically, Canada started to grow more pulses. So, when we talk about pulses, we're saying peas, beans, lentils, and chickpeas. We didn't know very much about quality standard for pulses. **[*… audio skips*]** Beans, navy beans, were certainly used domestically as well as in international markets for canned pork and beans, so we knew something about the quality that's needed for those types of beans. But for any other beans or chickpeas or lentils, we didn't know very much about what our international customers were looking for. And, certainly, we've grown peas for many years in Canada. I mean, peas began being grown with a fair amount of emphasis in Manitoba anyway in probably the '30s. But, again, it was pretty much just cleaning whole

seeds and splitting and selling them offshore. So, when I came to CIGI, we saw that as an opportunity for the type of work we could be doing, which was better understanding what customers were looking for, and working with--. **[… *audio skips*]** Varieties that met consumers' needs.

NP: Who were the major exporting countries, then, of those products? Or were countries that used them pretty much just supplying their domestic markets?

LM: Well, depending on which crop type we're talking about, I mean, certainly, a lot of our coloured beans were being exported to Central America, South America, and Mexico. Obviously, things like lentils were going into India, so were peas also into India. Peas are also widely exported now into China. So, again, as Canada got established as being a producer, number one, and then second, a producer of good quality, new markets opened up and--. **[… *audio skips*]** To making us successful or unsuccessful, so that was sort of some of the early work that had to be done.

[0:45:12]

NP: What precipitated the change from the university setting to the CIGI?

LM: Well, I think I was ready for a new challenge, and I saw that the job was somewhat related. I would continue to do research, I would continue to do education, it's just that I wouldn't be educating university students, I'd be educating customers about Canadian product.

NP: What was the position that you moved into?

LM: So, I was director of special crops, oilseeds, and pulses. For a short time, I also headed up the wheat technology area as well. But then we realized that the whole area of special crops and oilseeds was a big enough job in itself. I didn't need to do the wheat technology.

NP: Review for me what the special crops--?

LM: So, special crops were things like flax, buckwheat, food barley, food-grade soybeans. So, it was all the sort of, in a way, minor crops—not that barley is a minor crop, but food barley is minor. Malting barley is a separate thing.

NP: Were you in charge of a department?

LM: Yes. So, during my time there, I was able to convince--. I partnered with producer groups as well as I wrote proposals to get funding to put in a pulse facility. So, we put in a de-huller and a splitter, some flour mills to produce flour, and I was then able to hire some staff that worked on that. Then, as the work progressed, we--. **[*… audio skips*]** Because there was a greater opportunity there, and so I was able to then work with the other technical staff on things in our bakery and our pasta plant and what have you. So, we would take that pulse flour and add it into, as a percentage of, certain end products and see what the effect was on nutrition as well as on quality and marketability for that.

NP: You mentioned that the focus you focused on, was it, pulses?

LM: I had really three major areas. I mean, I dealt with many crops, but I focused primarily on pulses, food barley, and food-grade soybeans.

NP: And you mentioned at the same time that the reason for the focusing was the fact that there was more potential for market. So, tell me about how Canada identifies these things.

LM: Well, I think, where my strength came was the fact that I had an understanding of nutrition, I had an understanding of end-product quality, and so whenever you're trying to take a crop from being just a basic commodity to a food ingredient, you have to have a good understanding of those other aspects like nutrition and end-product quality. So, for all of those things, whether it was pulse flours or food barley or the food-grade soybeans—which, when I say that, I'm talking about tofu, miso, soymilk—there are very unique characteristics that are needed. The customer who's buying those ingredients has a very specific outcome that they're after—they want the tofu to be smooth and not beany tasting or whatever—so that means certain varieties need to be selected to go into that market for certain nutrition. So, it's very specialized, and you can see where it's very ingredient-specific, it's not commodity based. You're not just trying to get some peas in and feed them.

NP: I'm, for this project, particularly interested in almost the nitty gritty of how these things were done and accomplished because 50 years from now nobody--.

LM: Will understand how that happened.

NP: Will understand how it happened. So, let's say that you're--. Would you be sitting down at a director's meeting and saying, "Okay, what are our opportunities? What do we see here?" Were you connected with--? You said, I think, briefly, mentioned working with the producer groups. So, is it possible to just take one of those, soy as an example, and just work us through how you

would get from well here's a--. **[… *audio skips*]** To actually having something on the other end that meets those user--. The customer opens the package of tofu and says, "Woah! This is good!" So, can you run us through that?

[0:50:50]

LM: Well, I think, if we do take soybeans, say, for example, what would have happened there is I would have been working with a producer group who was interested in working with the exporters. So, a partnership basically between the exporters of the soybeans, the producers who are growing the crop, CIGI who has expertise in running programs and doing research. So, we would--.

NP: So, if we use the actual situation that you would work with, who are examples of the exporters, what's the existing producer groups? Can you be that specific?

LM: Oh, sure! Yeah, I can be that specific. So, in the case of the producer group, it would have been primarily the Ontario Soybean Growers, which is now Grain Farmers of Ontario. They're still the largest producer of soybeans. During my time working with that organization, the Manitoba and Quebec group joined with Ontario to form an alliance called the Canadian Soybean Council. So, I would work with them representing the producers who were interested in assisting exporters with their marketing efforts, with the idea being that if customers appreciated what Canada had to offer, Canada would be their first choice in terms of buying. In terms of exporters, there is an organization called the--. **[… *audio skips*]** Approximately 15 to 20 exporters. So, for example Prograin in Quebec is one, and Thompson's Ltd. in Ontario is another example of an exporting company. They belong to this association, and they would also come together where they can do marketing. Obviously, they have their own business, but they would see the benefit of doing generic programming in customer countries.

So, what I did while I was at CIGI was I worked with both associations to put on programs on their behalf. So, I would organize these programs, and when I say that, it could have been an incoming program or it could have been an outgoing program. So, an incoming would be inviting customers to Canada to showcase the industry, which meant that we would travel to the three soybean growing regions in Canada, take them to a farm, take them to a processing facility—and when I mean that, I mean an exporting facility—where they would clean, test for the presence of GMO, meet the specifications that a company's looking for. We'd take them to the port situation to show them how containers are loaded on a ship to ensure quality. We'd visit the Canadian Grain Commission to see what their role was in it. And, of course, they would meet with the producer associations and anybody else that was important to showcase the industry.

NP: How would you identify the--.

LM: Customers?

NP: Mmhmm.

LM: Okay. So, that would have been a combination of talking with the exporters, because they certainly knew who the customers were. We would also work with the Canadian government, so the various posts in countries we would talk to them about how best to identify key customers. Certainly, over the years we did lots of programs for Japan because they were the number one customer of food-grade Canadian soybeans. So, Canada is their leading supplier of soybeans, and so we got to know the post very well in terms of helping us. So, it really is, any of this--. I think that's Canada's strength. When we market, it is really a combined effort of everyone working together.

[0:55:36]

NP: Now, when in this process would you be actually identifying the quality of their end-use product? So, would you go and buy some product off the Japanese shelves because you said there's also a sort of a product testing component to this, though, that you can--?

LM: So, we would also do outgoing programs, and so those would be to go and deliver a seminar to customers. We'd hold a seminar at a hotel and invite the customers to come, but we would also organize visits to specific companies. There we would have very good discussion about end-product quality and, of course, we would have the opportunity to try products—again, taking that information back and working with the breeders here in Canada. Sometimes they accompanied us. We would ask them to join us on those outgoing missions. Ultimately, I think that really is critical because if the breeder doesn't understand that end-quality is critical and this is the thing they're looking for, the varieties aren't going to be developed the same way.

NP: Was there always a solution?

LM: No. [Laughs] Not always a solution, because--.

NP: Were there some things where no matter what you did you really couldn't meet--. The product just couldn't be produced with Canadian--?

LM: No, I mean, I think usually when we went, we could usually find a solution for them to use Canadian product. The thing is that some of the things that customers ask for, you can't get an answer to it right away. So, for example, if beany-ness is a flavour they don't want, it does take time to develop a variety that doesn't have that flavour profile. I mean, you can't do that in a year.

NP: What is beany-ness?

LM: Well, a lot of, for example, soybeans have a very strong bean taste. It tastes like a very strong soybean, so they want a milder tasting product. But we couldn't always guarantee them that we had a variety that was there, but it didn't mean that down the road we wouldn't. It depended really on whether, first of all, it was possible from a science point of view, and second of all, if that was a really strong desire by a large number of processors.

NP: Then it was worth doing the research, as you mentioned before.

LM: Yeah.

NP: What kind of connection then was there back to the Grain Research Lab?

LM: Well, depending on what the crop was, again, in the area of food-grade soybeans there wasn't really one because they weren't active in that area. But certainly, they had in the areas of durum wheat, and wheat, and oilseeds, whether it was canola or flax, that's where those types of connections could be made where you'd talk to them in terms of--. Again, they would participate in those missions, and they would hear that information firsthand as well. So, it really depends on the crop and what the issues are.

NP: Was that always a good working relationship? Because I can see in certain circumstances—not so much circumstances as people—like, "Where do we draw the line? Can we always cooperate or are you sort of poaching my research?" Was that ever an issue?

LM: You know, I never experienced that. I always felt that the--. I mean, I did a lot of collaborative work with the various scientists at the Grain Commission, where my time permitted it. I think the Grain Commission was always a part of CIGI programs because they're a key part to basically promoting Canadian product. There's always more problems to solve than there are people, so I never saw it as an issue, and I don't think they did either. But as you know, a lot of time it gets down to personalities and cooperation and willingness. So, you know, they couldn't answer everything because they weren't able to, you know?

[1:00:37]

NP: Were actually at the hour mark, so why don't we take a bit of a break?

LM: Sure!

[Audio pauses]

NP: Okay, we had a nice little break, and now I'd like to continue with where we left off. I think you did a good job of explaining how to take that one product--. One thing I'd like to ask is if the--. Hm. So, the connections that you would have had in order to identify the potential markets, they would have been exclusively from the producer groups, whereas if you were looking at wheat, for example, I would imagine there's a really tight connection with the Wheat Board.

LM: Right. So, in the case of wheat, it would have been coming from the Canadian Wheat Board [CWB] in those days. But with some of the other crops, it wasn't so much producers because producers didn't necessarily know where their crops were going and where the emphasis--. It would be more talking with the exporters. So, the companies that were actually selling into those markets, or with talking with the posts in the various countries, where they could see opportunities.

NP: I'm going to ask some questions about connections to other groups in the industry. Where you've already commented or said all that you want to say about it, just say, "I've already dealt with that." One of the things I found interesting about the industry, since I knew extremely little about it before we started this project, is just how many players there are and how, in the majority of situations, they actually worked in a nice cooperative fashion to help improve the Canadian trade in the international markets. I think you've said a fair bit about your connection with the producers. Was there any connection at all in the work that you did with the carriers—the railways or the ships?

LM: The only connection we had with them is if we asked them to provide a lecture in one of our programs. They would come and give a lecture to our participants in a program. Also, I guess, sometimes we would actually have the opportunity to visit a port, so we would have had to have their cooperation in visiting that port.

NP: So, to take that just a little bit further then, grain handling. Did that have any impact on--? The grain handlers, that would include inspectors and so on, was there--?

LM: Well, certainly if we did a--. What we were doing in a situation like that, we were showing to customers the difficulty we have in Canada in terms of getting our grain to export position. This is an important piece of information for customers to learn, that it

isn't as straightforward as it is in other countries that are producing grain where the grain is easily moved to port position. They're also closer to deliver that grain to that customer. Canada grows—as you know—grows all the grain in the centre of Canada, and then we've got to get it east or we've got to get it west. We're in the Northern Hemisphere and a lot of our markets are in the south, so that's why we needed the cooperation of the rails and the shippers in terms of resourcing our program.

NP: Would it make any difference to the customer? Wouldn't they just say, "Well, that's your problem"?

[1:05:00]

LM: Well, I mean, of course they would say it's our problem, but they at least gained a better appreciation of when we weren't able to deliver as timely as they would like, or the fact that we needed a bigger lead time. Or that it was more costly. I mean, ultimately, they had to be aware that it was going to cost money to get the product there.

NP: You referred a couple of times to the courses that the people would take. So, tell us more about those courses.

LM: The programs were almost always undertaken on behalf of an association, so we didn't do too many programs just on our own. We always partnered with someone to deliver a program. So, it could have been the CWB asking us to do a program for Latin American millers, for example. Or it could have been the Canadian Soybean Council saying, "We want you to do a program for tofu manufacturers in Japan." Or it could have been Pulse Canada coming to us and asking us to do a program, or the Canola Council. It was always to market the Canadian product. So, we would work with that partnering organization to develop a program that was tailor-made, to fund the program. The way CIGI operates is that we get a portion of our funding from the Canadian government to do marketing efforts on behalf of the Canadian industry, but in order to access those dollars we have to have matching dollars from the industry.

NP: Has that changed now with--?

LM: Has changed partially, but CIGI is still getting some federal government money as well as producer money.

NP: Does that come out of the Department of Agriculture budget then, or Trade and Commerce, or a combination?

LM: Yeah, comes out of Agriculture, yeah.

NP: And what were sort of the standard pieces? You said that the courses were tailored to the specific customer requested by the--. **[… *audio skips*]** Mostly always found their way into--?

LM: One thing that was always common to all the programs, whether they were more technical in nature. So, sometimes, for example, we might have had millers that came from various countries to learn about how to mill Canadian wheat, or we might have done something much more generic. But always what was common to all those programs was time spent on a farm. We felt it was critical that those participants met with a Canadian farmer and understood how crops are grown in Canada. They always spent time with the CGC as the regulator, better understanding the Canadian system for grading and inspection, and any of the other relevant programs. They also spent time in the CIGI facilities because there was pilot facilities to show them the work that we were doing to better understand the quality of our grain and their applications. **[… *audio skips*]**

NP: Was there—and this is a self-serving question—was there equipment and testing, like old mills and things like that, that were no longer needed that are sort of stashed away somewhere, waiting for somebody like us to ask, "Can we take them off your hands?" [Laughing]

LM: Yeah, I think there is going to be some equipment that you can access.

NP: Who else would want it?

LM: Yeah, for sure. [Laughing] Well, one other thing I should also tell you that we did, and it was common to all of them, is we usually visited a grain handling facility. So, we would visit an elevator, whether it was a country elevator or a terminal elevator—or it could have been a small cleaning plant depending on the commodity.

NP: What kind of reactions did you get? We're particularly interested in the terminal elevators and the large ones. What--?

LM: Well, first of all, especially when we visit--. **[… *audio skips*]** The common themes that we would have, whether we visited a Canadian farm or a terminal elevator, it's the size and volume of grain that is moving. Whether the farms in Canada are large—especially in western Canada—and then certainly when you visit a terminal elevator, the volume of grain that's moving through it. We always tried to target our programs to happen, ideally, in the fall, but they happen throughout the better climate time in Canada—spring to fall. But if a participant was lucky enough to come on a program in the fall, I mean, that's when there was so much action that they couldn't believe it.

[1:10:34]

NP: Speaking of action makes me think of developing resources such as films. Did CIGI develop films for use during those--?

LM: CIGI actually did develop several films. One of the ones that we used for quite a--. **[… *audio skips*]** And, certainly, those are available too.

NP: Good. I think that probably deals with that interconnectedness. When you think back on your career, and I think particularly your time with CIGI, what changes have you seen?

LM: I think one of the most noticeable changes that I saw over that period of time was the sophistication of the customer, that they became much more knowledgeable about the quality that they needed in their raw material, and also the fact that--. **[… *audio skips*]** Could offer. So, I watched markets grow for Canadian grains. I mean, the market was always very good for Canadian wheat and barley, but what I saw over that period of time was the market for canola and the market for Canadian pulse grow tremendously.

NP: Where were the increases in the markets? What quadrants of the world would you say?

LM: Well, for pulses, I would say China became a major growth market for Canadian peas, and that was--. They buy huge quantities of yellow peas to extract the starch to make what they call vermicelli noodles, so starch-based noodles. That was something that they actually figured out for themselves, that peas could be substituted for mung beans—and that's a huge cost saving to them because mung beans are very expensive, and they're not grown widely in the world. So, that was one area. The area of canola oil, I would say that the major growths were--. **[… *audio skips*]**

NP: Were there shrinking markets as well that you noticed? Or not in the areas that you were working?

LM: Well, you know what, I think where I would have seen that primarily would have been in the wheat markets where markets shrunk in certain areas, but then they grew in others. So, there continued to be a demand for Canadian wheat, and, rightly so, we changed the market emphasis for the people that were willing to pay for that quality.

NP: Rather than competing on the lower quality grain that everyone could grow and wanted to?

LM: Yeah, yeah. But, I mean, you always have to maintain possibly some of those markets because there are times when we do have a problem with quality due to growing conditions.

NP: Any changes in the organization itself?

LM: CIGI?

NP: Growth? Lack of growth?

LM: I think what I saw over that period of time was--. **[… *audio skips*]** Activities for the CWB, so primarily wheat and malting barley. That work continued, but there was additional growth in the areas of the pulses and the canola and the food barley and the soybean.

NP: So, when you were just thinking about retiring, you retired right at a major time of change in the industry itself, and in particular the change in the role of the Wheat Board. Was it too soon to have any impact on the CIGI or can you predict whether it will have any change?

[1:15:08]

LM: No, I mean, we already knew. We were given advanced—well, not advanced warning—but I mean, it took a year before--. **[… *audio skips*]** Organization to what was going to happen. I mean, we had some lead up even before that that it might happen, and so we were looking at how we could position the organization to the change. As a result of that, I think the organization has dealt with the change fairly well.

NP: So, what would be the major repositionings that had to take place?

LM: Well, in the area of wheat, what we had to do there would be to align with the other exporters because up until then, we were just dealing with the CWB, but now we were dealing with all the organizations involved in marketing of wheat. It wasn't a case of not having interaction with those other grain companies, but we just hadn't been active with them in terms of hosting programs and what have you.

NP: Was there any change as a result of the disappearance of the Wheat Pools? Sort of the rapid--. **[… *audio skips*]**

LM: I don't think that one was quite as much of a change as the Wheat Board's change, the reason being we at least had been involved with all of the grain industries—whether they were the Pool or the whatever company was that bought them out. They

were more as people that participated in our programs by helping us--. Like we would host a reception and they would come. Well now we had a few less people at our receptions. [Laughing]

NP: So, I'm thinking now of Glencore in particular because that's the one that had the most major change in ownership. But did the people who ran that organization who were kept on, were they people who were familiar with the work of CIGI and so on? So, really it wasn't that you were--. **[*… audio skips*]** Familiar with the intent of your work.

LM: I think that's one thing that CIGI has done well is that they are well-known to the grain industry. So, you're right, those people were still involved, and CIGI is highly thought of, so that's another positive thing. It was always an interesting organization. We were well-known to the grain industry here in Canada, and we were certainly known around the world, but within Canada nobody knew what this organization was. But it's not a large organization either. There's only 35 people, and basically most of our work is done for international markets, so that's where we should be known. And, of course, known domestically with the grain companies.

NP: Challenges? Thinking back to whichever positions, or all positions, that you've had, describe some of your major challenges.

LM: Well, I think, probably the biggest--. **[*… audio skips*]** All organizations. So, sometimes that made for challenge because not everyone agreed on the path towards marketing. So, for example, producers may have had a different view than, say, the exporters, or that type of thing. But, you know, that was sort of our strength was trying to bring the two groups together and decide what could be done together for the benefit of the industry. So, of course, some days it seemed like, "Why bother?" But ultimately, you had to keep focused on what was the goal, and it was to market Canadian grain for the quality that it has. If you believe in that, you'll find a way around those challenges.

NP: Now, what would be the difference between--. So, the producer versus the exporter, is that what you said? So, what would be--?

LM: Well, for example, the export--. **[*… audio skips*]** Market, generically, about Canadian grain. What they didn't like was if we exposed their customers to their competitors, right? Which we could appreciate. We didn't want to interfere with business. So, that was where it got a little bit tricky, was to do that but yet provide that opportunity for them to get on with their business with their specific customer.

[1:20:05]

NP: So, how could you actually balance those?

LM: It wasn't easy. But what we would do is, for example, if it was an outgoing mission, we would host a seminar and then allow time for one-on-ones with the companies and the customers so that they could arrange to do their business with their particular customer. And it was a case of working very closely with them to make sure that how we set up that seminar benefitted them to do their business, because ultimately that's what it's all about: making sure that the business takes place.

NP: Which brings up an interesting point, because one of the--. We've done interviews with people working closer to the ground, I would call it—especially in Thunder Bay—and speaking to some of the old-timer managers of the various elevators at a time when the Wheat Board was operating, you had quite a mix of the co-operatives versus the private terminals, and you had the operation of the Ports Clearance Association, which tried to sort of smooth out deliveries so that you could get things moving as quickly as possible, and you also had a player like the Wheat Board, and the Grain Commission, I think, maybe to some extent. **[…** ***audio skips*****]** The term I want to use here, working the rail companies with some clout, and now we have such a different landscape. What some of the managers who were in place as the companies were amalgamating, and then the disappearance of the Wheat Board, and saying that they used to work in a very cooperative environment where, you know, if somebody was short on a shipment, well, they'd just call so-and-so—a competing company—because we were all in this together. But they said even in their time, which was far less of a change than now, that sense of cooperation, openness, knowing what was going on--.

LM: It's not there anymore.

NP: It's not there anymore, and I would think that would make the work of--.

LM: And, I guess, time will tell what will happen there. I mean, right now, basically CIGI still has the mandate to do marketing on behalf of the industry, but it will be more challenging to get the buy-in from the industry, I think, because of the very thing you're saying. The competition is much greater, and people are not necessarily as willing to cooperate.

NP: For the reasons that you're saying about what you've been dealing with with the smaller suppliers, now you're dealing with the major commodities.

LM: Yeah. So, then, I think, why would it be any different for them?

NP: So, in a sense, CIGI might be well placed because they've already dealt with this, just not with the--.

LM: Yeah, yeah. But, you know, a lot of times I think what happens—and it makes sense when you think about it—is that if a market becomes established, is there a need for this generic marketing? But, I mean, I think all organizations have to evolve, so CIGI will figure out where their role will be.

NP: Or they'll disappear.

LM: Or they'll disappear. [Laughs] God, we hope not, because I do think they bring value, but not if that value's not needed anymore. So, they'll figure it out. And right now, every organization's gone through such change, it makes sense that CIGI too will. It has gone through some change, but it hasn't been devastated at this point. **[Audio pauses]** I think we're pretty much done though.

NP: Now I remember what I wanted to say.

LM: Okay.

NP: I'm wondering too whether you faced any challenges on the more sort of practical side, which is was there a particular quality issue that was really difficult to accomplish? We talked before about making sure that there was no beany flavour to the soybeans. So, something that was a real challenge and then, finally, after all this hard work, you had it?

[1:25:08]

LM: Well, I think, one of the things that--. We've done a lot of work with pulses, and as I told you earlier, we didn't really understand what quality was in pulses. We didn't really understand what customers were looking for, so that was quite challenging. I decided that we should establish a pulse program at CIGI, so we set up a facility and we also hired some staff. But then, you know, you couldn't get qualified staff who'd worked in pulses because nobody had worked in pulses. So, that was very challenging, but what I saw--. Actually, this fall, I saw my former staff presenting at a scientific conference in the US—it's a cereal chemistry conference—and it was really rewarding to see not only the quality of the work they were presenting, but that other scientists were referring to their work. So, I would say that that was one of the more challenging things that in the end has really paid off. They've become the experts—well certainly the Canadian experts.

NP: Now, that's another question I had because one of the things you mentioned early on in the interview was the fact that when you went to do your doctoral work at the Canadian Research Lab, here you were in amongst these people who were world-renowned for their research—and respected. Has Canada held that position or have they sort of backslid?

LM: Well, as you know, the government has certainly cut back a lot of positions, so we're losing scientists in many organizations: Agriculture Canada being one; the Grain Research Lab, which is part of the CGC had downsized as well; people from Canadian Food Inspection Agency [CFIA], scientists from there as well. So, it is a bit of a concern, in my opinion, that we're losing scientists. Those are government-held positions, but even universities, I mean, it's difficult to maintain programs there. All of this is costly. I think the other thing that a lot of organizations are finding is that it's hard to get qualified staff—PhDs in cereal chemistry, to be specific—and so that's all affecting. So, I would say, in answer to your question, perhaps we're sliding.

NP: What other countries--. Like at one time, according to some people, Canada's way up there with perhaps Britain, and I think Germany might have been mentioned. Are other countries coming to the forefront, then, that will be the go-to nations for research if Canada doesn't do it?

LM: Well, yeah, it's a difficult question to answer because I think a lot of countries are facing the same problem—especially if they're public-funded. We are talking government researchers or academics. Certainly, you'll see the rise of, say, for example, China, where there may be more scientists being employed. A lot of them trained here in Canada. But the thing is, they aren't going to do the research that benefits the Canadian industry, so in the end I think it's a loss for Canada.

NP: Will the private sector be able to pick it up?

LM: Well, you know, this is an interesting one because one of the things that the Canadian government, one of their rationales for downsizing some of the scientists with Agriculture Canada, is their belief that the private sector would pick up on the breeding efforts. The truth is, some of them will, but it depends on the crop, and it also may not be as thorough a job in terms of the research. Especially when the same time we're getting rid of scientists in the public sector and downloading that to the private, we're also changing things from a varietal registration system—which means that it may reach the point where new varieties will be released, and they won't undergo the rigor that they once did, which was to maintain a certain level of quality. So, I know that the varietal registration is being reviewed right now by all of the various crop sectors, and depending on what happens, I can see that it may not be good for the industry, because it could mean the release of just any kind of variety, which then means the customer, it's dependent on them to do their testing. They may not be as willing to buy from Canada because Canada always had such rigid restrictions on quality that if they bought Canadian, they pretty much knew what they were getting. Now if we have general release, they'll have to test. Maybe, "Why buy Canadian?"

[1:31:05]

NP: Especially since you said the cost is higher because we've got these other factors that we have to deal with, such as--.

LM: And I think maybe it's a case of people not really understanding the quality, what has been Canada's success. They think, "Well, maybe we just need to get the product out there. It doesn't matter."

NP: Is there a likelihood that if it's privately funded, unless it's several private groups coming together to share the research, that then it just is proprietary? And--.

LM: Right. And then it's everyone's business. Or it's just everyone's out for themselves. Exactly.

NP: Yeah, yeah. What would you describe as the major changes and advances in science and technology related to the work that you did over the time?

LM: Well, I think several things come to mind. I think the clearer understanding of nutrition being important is one. Another one being the knowledge about functional foods—so, that's somewhat related to health and nutrition.

NP: Now, functional foods, some people wouldn't understand what you mean by that.

LM: Okay. Functional foods is when you have a food that contains health benefits beyond the basic nutrition. So, beyond protein and vitamins and minerals, you might have a specific compound that's present that has a huge impact on health. So, most people would be aware of things called antioxidants—that would be an example of a functional benefit beyond basic health. So, really, I think a lot of Canadian grain actually falls into the functional food categories—things like flax, which is loaded with more than just high levels of Omega-3, but it also contains a lot of other specific components that adds to the health-nature of flax.

NP: Where's the research coming out of those? Out of universities?

LM: That would be mostly out of the universities, yeah. Yeah.

NP: Any disasters?

LM: [Laughs] Well, I mean, other than sometimes a program not going as well as one hoped, but no, I wouldn't say really any disasters.

NP: So, what constitutes a project--.

LM: Program that doesn't really work out? Well, that could be that you have perhaps some problems getting your participants to the country, travel. One year we had SARS epidemic, which meant no one wanted to travel to Canada, so we lost a substantial amount of money on travel and hotels because we had to cancel everything. That would have been one, I would say, that would be a disaster year for us. But those don't happen very often. [Laughing]

NP: If you could encapsulate in a couple of sentences what you know about the Canadian grain industry now, as you retire, to what you knew when you were out on your grandfather's plot--. [Laughs]

LM: Riding on his tractor?

NP: Riding on his tractor, playing in the grain.

LM: Well, I think one of the things, in a nutshell, I'm really impressed with how in the past they worked in a cooperative fashion for the betterment of the grain industry, and how they had elevated the belief that Canadian grain was of high quality and therefore it demanded good dollar for the product people were getting. I just hope that continues because, to me, ultimately, that's where Canada wants to be, or should be. **[*… audio skips*]** Industry as a whole.

[1:35:37]

NP: Figure the producers will understand that?

LM: Not so sure. [Laughs] Because I think a lot of times, they don't know the whole picture, right?

NP: This is going to be almost a silly question given what we've talked about up to this point. But—and I'm reading right off my questionnaire here—what is your sense of your role that you and your company played in Canada's success as an international grain trader?

LM: Ah, yes. Well, I think our role was—and me specifically—was just facilitating that very thing. Doing technical marketing, helping customers understand the Canadian system and the quality, and why our product was suitable for their processes.

NP: Just directly related. No need to use any imagination to connect the dots.

LM: No, none whatsoever.

NP: Canadians, starting with Thunder Bay—but it is in the middle of the country and there are people that still travel on the ground from one end of the country—in the fact that Canada does have a grain trade to be proud of, what would you like to see reflected in, if we ever get a centre set up, reflected in the programming or the displays that would celebrate what you've done, the type of work that you've done, or the work that--?

LM: Or that CIGI's done? Well, I think it would be nice if you could showcase a little bit about what CIGI has done because I think they played a role in establishing those international markets in particular because they were the technical marketers. So, they went with these other organizations to talk to customers more at a--. **[…** ***audio skips*****]** We found that—or I certainly found this—that when I talked with customers, they were comfortable talking about their technical difficulties or what they liked about Canadian product over a competitor's product because, ultimately, I'm not trying to sell them the actual product. I mean, I was knowledgeable obviously on a technical level as well, so I think CIGI really played a role and still continues at this day. So, I think it would be nice if you could feature us as one of the partners in the broad scheme.

NP: And even just seeing where your reach was because I think that--. I still can't comprehend, although we had a display at the Thunder Bay waterfront, which was quite an eye opener for the people from Thunder Bay who have seen these ships going in and out. We had this one, "Where the grain goes," and it was amazing to me—disheartening as well—where you'd have people--. **[…** ***audio skips*****]** Products to various places in the world, and speaking to their children and saying, "Well, that's where the grain comes from." So, there's just no concept.

LM: Yeah. I mean, I don't know the current statistic for CIGI, but I think it's over 26,000 participants from 35 different countries have attended a program at CIGI. So, we've certainly brought a lot of people to Winnipeg. Most programs would at least start in Winnipeg, and then we took them elsewhere as well, or some just stayed in Winnipeg. But it's fairly impressive.

NP: And, for our part, I mentioned to you that we were interested in the science of the industry as well. Maybe we can even create some interest so that people will go on into those areas of study.

LM: Yeah, that would be fantastic because I think we need them. [Laughs]

NP: Well, yeah. Fewer people on the farm, and that's traditionally where they came from—you, being an example.

LM: Yeah, exactly.

NP: Final question then, unless you have other--. **[*… audio skips*]** Most proud of. When you think back on your career, what brings you the most sense of satisfaction?

LM: I think, for me, it's been the people that I've had the opportunity to either work with or to talk to—whether it's about research or technical issues or just learning more about their country—for me, the greatest reward has been the people, and building research teams or collaborating on research. It's people.

NP: Great. Well, thank you very much.

LM: Well, thank you!

NP: It's been enlightening. I love to see how everybody brings their little piece of information to the puzzle that makes it even more complex than it was. [Laughing] You know, it's not just a farmer putting some seeds in the ground. [Laughs]

LM: Exactly!

NP: So, thanks very much Linda. I appreciate you taking the time.

End of interview.