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Company Affiliations: Brewing and Malting Barley Research Institute (BMBRI), Canadian Wheat Board (CWB), Irish Farmers' Association

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Summary: CEO of the Brewing and Malting Barley Research Institute Michael Brophy discusses his career in both the Canadian and Irish grain industries. He begins by describing his upbringing on an Irish farm learning about growing and selling malting barley before starting his career in agriculture with the Irish Farmers Association. He recounts moving to Canada with the Canadian Wheat Board in the marketing division for Western Europe and continuing to interact with Ireland's barley trade. He shares the differences between Canadian and Irish grain handling systems and barley growing capabilities. He lists the main maltsters and brewers in North America, discusses the history of Canadian barley plant breeding, and shares the story of expanding the barley market in China with the CWB and Canadian Grain Commission. Brophy then discusses his move to CEO of BMBRI, shares the history of the organization and its mandate to develop and test high quality barley varieties, and describes some of the organization's current research projects. Other topics discussed include the reduction in barley acreage in Canada, the removal of malt barley from the CWB's single desk, Canada's international reputation for high quality malt, and the rise of small craft breweries.

Keywords: Brewing and Malting Barley Research Institute; Canadian Wheat Board (CWB); Irish Farmers Association; Malting barley; Grain farmers/producers; Country grain elevators; Beer brewing; Grain research; Grain science; Plant breeding; Grain varieties; Grain marketing; Canadian Grain Commission (CGC); Inland grain terminals; Grain variety registration; Grain diseases; Canada Malting; Guinness; Ireland; China

Time, Speaker, Narrative
NP: This interview is taking place in Winnipeg, Manitoba and it is December 3, 2014, and I would like our interviewee today to please introduce himself.

MB: My name is Michael Brophy, and I am the CEO of the Brewing and Malting Barley Research Institute in Winnipeg. I have been with this institute for the past seven years, and prior to that I was with the Canadian Wheat Board, and prior to that in my area of career I grew up and worked up in my native country, which is Ireland.

NP: Now I think you are probably and perhaps not the first, but pretty close, person that I have interviewed who actually has a deep farming background certainly from Ireland but even from the European area. Did you grow up on a farm?

MB: Yes.

NP: What was your first introduction to grain?

MB: The first introduction to grain was on our own farm. Like many other families in Ireland, the small farm with a big number of kids and all sorts of enterprises cows, chickens, sheep, grain and cash crops. The grain we grew is malting barley to sell to the local malting company and sugar beets as well. No shortage of work on a small farm growing up in Ireland.

NP: My mother's heritage is PEI, and her family came from Ireland or a number of them did. Same thing—large family and small acreages. How did that play out in your family? Did anybody stay on the family farm or most of them had to leave in order to--?

MB: My older brother stayed on the farm and also a younger brother, when we bought some extra land. Two brothers stayed on the farm or the farms next door. The rest of the family moved to other careers. I was lucky enough to be given the opportunity to go to college and to university and get a degree in agriculture and got a master's degree in crop production. That developed my keen interest in grain and that is the career I followed both with my original employer in Ireland, the Irish Farmers Association, and continued to work for farmers but on the staff executive side working with farmers and farmers committees in their negotiations and discussions with government and with some of their buyers whether it was malting barley or milling wheat. I really enjoyed that because it gave me an opportunity to use my qualifications to help farmers and also be close to my original love, which is farming.

NP: You mentioned that your farm had to be a mixed farm in order to survive. But we will focus mostly on the barley. I am interested in what did you pick up related to growing barley on contract? Did your parents ever discuss complexities of that?

MB: Oh yes, very much so. You would learn as you go along from experience from talking with your dad and working with him. Going to secondary school, my job would be during the summer at harvest time to drive a tractor with a load of grain to the local elevator which were called grain merchants at the time intake point. The barley would be tested by the manager there. On the spot

he would test it visually and smell it and handle it and tell you after standing in line for an hour or waiting in line for an hour, “It is not suitable. You are going to have to take it away.” You would have to take it to the next place buying feed barley. Or he would say, “Yes it’s good. I’ll take it for malting.” I learned that as a teenager working with my dad. That was even before going to university learning more about the science of the quality of grain.

It was a very easy step for me later in my career when I started working with the Irish Farmers Association and going in to sit down with companies like Guinness to discuss pricing and quality for barley. It was already there in my blood, so to speak. Interestingly, when I came to Canada and started working with CWB, they immediately saw this guy knows something about barley and beer from his previous life, so that was the area I settled into with CWB. Shortly after that when this opportunity became open here at the Brewing and Malting Barley Research Institute, it was a natural fit also. I think starting on the farm it was something that I learned early in my life that I was able to use right through my career.

NP: Lovingly it sounds like!

MB: Yes, it has been very interestingly.

NP: I am interested in—and I was just checking my notes here when you gave me a brief outline of your career dates—when you moved to Canada then was there still a lot of country elevators around or had they already--?

MB: Yes.

NP: Comparing the Irish set up to the Canadian set up for accepting or not accepting the barley, can you comment on that?

MB: Yes, that was the interesting part. When I originally came to Canada about 1990, I came to a conference to do with my work back in Ireland, and I started to learn more about Canada. Then I decided two years later to come and work here and see how it would go for me and thinking I might go back to Ireland. But as it turned out, I stayed. Part of the experience was to learn about the Canadian system compared to what I knew. One of the first things that struck me was as I drove across the Prairies every eight or ten miles—I forget what the exact distance was that the railways usually had, but the other thing was the small little elevators—the cathedrals of the Prairies as somebody was describing it to me, they were still there in the early 1990s.

The other interesting thing that was different to back home the elevators were geared to take the grain from the farmers. The farmers stored the grain in most cases, and then when it was ready to be shipped for CWB or CWB exports or deliveries to grain companies, they would come from the farm store into the elevator and be put into the hopper cars. Whereas, where I grew up, all

the delivery took place right at harvest time. It was this huge surge of deliveries coming in straight from the combines to the local elevators or grain merchants or malting companies. It was a completely different delivery system.

NP: The surge style of delivery was identified in Canada early on as a bit of a problem because of the supply and demand situation. Was that an issue in Ireland or it wasn't a big enough industry?

MB: It was an issue for the farmers growing the grain whether it was milling wheat or malting barley. As a result, the farmers developed their own way of coping with that. They elected committees such as the Irish Farmers Association Grain Committee, of which I was executive secretary, and then those committees in advance of harvest would meet with buyers like Arthur Guinness and Company and the malting companies and the flour millers and negotiate the price in advance and the quality specifications. That was the mechanism that they put in place to cope with that so that they were not trying to negotiate the price when they were lined up at the elevator. Somebody on their behalf had done it for them. That was the system there.

NP: Would they have samples of the crop so that they could determine quality?

MB: In many cases, yes, the samples would be taken. While there may be a lineup of 10 trucks or tractor trailers at an elevator and then the sample would be taken and while they would be waiting to get off the hopper, the manager would have determined whether it was suitable or for which hopper it should go to. If it was going to be feed or malting or milling or for feed. It was a different system, but it worked by in large to satisfy the needs of that particular market.

NP: You had mentioned that there was the local distillery. Was it a company listeners from Canada would recognize?

MB: When I mentioned the Guinness. The company Arthur Guinness, the original breweries in Dublin, St. James Gate Brewery, and still exists and is still the original major brewer for Guinness in the world.

NP: One of the major tourist attractions.

MB: Yes, correct.

NP: For Dublin.

MB: Way before it became a major tourist attraction, when I was in my early twenties, my first job where I would walk in through that gate with five or six Irish malt and barley growers that are part of the committee and meet with the raw materials buyer or head

brewer from Guinness and we would sit down and discuss the price. When I go back on holidays now and we were there this summer and we drove by that with our kids and my wife and we were sitting on top of this bus and I said, “Okay, see that window, in that room is where we would sit and discuss the prices for grain.” It was a nostalgic visit.

NP: Did everybody have to deliver to the one company or were there other company elevators? Were they a captive audience?

MB: There were agents. Each local town, major centre, would have a local grain agent that maybe an agent for Guinness or an agent for the malting company that is making the malt for Guinness or an agent taking the wheat for the local flour miller. The flourmill might be based in Dublin, but the local town would have an agent that would take delivery of the grain.

NP: Who would own the elevator?

MB: The elevators would be owned by private companies. For example, the malting companies would have their own elevators, or they would be maybe private feed industry companies that were buying feed grain, but also, they would have an agency for the malting company or Guinness or a milling company to take delivery of human grain as well. It was pretty much self-regulated. If there was a need the grain company would form and would create a local elevator to satisfy the need of demand.

NP: Did the elevators look like Prairie elevators?

MB: No.

NP: What did they look like?

MB: They just basically looked more like barns than the typical cathedral-style elevators.

NP: Were there disputes, and if there were disputes who mediated?

MB: Disputes would only arise occasionally because the quality factors were already determined, and we trusted the companies that analyzed the grain to do the job correctly. I don't recall that we ever had any major disputes. Maybe that was because things like that were sorted out in advance rather than after the fact.

NP: With your own farm and as you mentioned the producer would take the product to the elevator and it would be either accepted or not accepted as malting quality. On your own farm were you able to consistently produce malting quality?

MB: If you grew the correct variety which was specified on the contract with the malting company that was a good start. You also manage it properly in terms of the right amount of nitrogen. It is very similar to Canada. But the unknown factor that was not controlled was weather, obviously, and in many cases, crops may have been damaged by lodging. Got severe rain and the crop lodged.

NP: What does lodge mean?

MB: Lodging means it just gets knocked to the ground especially close to harvest when the grain is too heavy. The crop is very heavy on top. But the bottom line was that in some years you would not get malting quality because of the impact of weather. But most years because of the careful management growers did have it accepted. In many cases milling wheat was the one that suffered more from weather than malting barley because if it sprouted due to warm damp weather or warm wet weather, the millers would not accept it. Similar problems here in Canada even still.

NP: We don't have the answers to the weather questions. [Laughs]

MB: We have sprouting wheat and malt and barley still in Canada. So the scientists have been working on that one for a long time and they keep trying to find the answer and sometimes they have success with some new variety but they are never able to get complete resistance to sprouting.

NP: How big was your family's farm?

MB: Our family farm originally before we managed to get a farm next door was 70 acres, which raised 10 children comfortably at that time. Cash crops and milk. Selling milk to the local creamery. You have got 70 acres and you had on farm enterprises like milk, grain and things like that we were regarded as the rich people of the community.

NP: You delivered then by truck?

MB: When I say a tractor, I mean a local 30 HP tractor with a trailer behind.

NP: What are your measurements, bushels?

MB: Tonnes.

NP: Tonnes. What would you deliver in a good year?

MB: It would depend on the size of the contract. Many farmers may have just had a contract for 50 to 100 tonnes of barley with the local elevator. If that was giving them 100 pounds at the time before Euros, a tonne that was a significant amount of cash for a farm family.

NP: Now compare that to contracts in Canada. What size of contracts there? I mean they vary but what would you say?

MB: Most of the growers that even in the past 20 years but and still growing malting barley if they decide to put barley in the ground for a particular malting company, they are putting in 160 acres minimum. Maybe putting in a whole section of barley with a view to having that grown and accepted for malting. So the scale obviously is much bigger.

People would be targeting the production of 600 to 1000 tonnes of barley here to make it worth their while and a lot of growers that are currently growing malting barley they are basically specialty growers. Things have changed a little bit in recent years. Barley acres have dropped with the changes in the CWB system, a lot of the malting barley production is now with speciality growers. Malting companies are contracting the growers in areas where they know those growers are good malting barley producers and that have a good track record of growing malting barley and are going to put in the extra effort to carefully manage the crop and treat it as a specialty crop. In those cases, some of those growers may have a couple of 1,000 acres of malting barley because they have to treat it specially and maybe even have a special combine for their malting barley.

So it is very much a completely different experience from what I grew up with. The basic requirements are the same. It has got to germinate, which means it can't be damaged by weather or sprouting, so it has to have minimum 95 percent germination. And it has to be of a particular variety that suits the needs of a particular customer, whether it is a malting customer or a brewing customer and there are certain varieties that you have to grow. You have to be careful with your nitrogen application to make sure the protein is not too high, and the crop doesn't get too lush and then lodge in the field if it gets a thunderstorm. The basic whether you are growing 100 acres or 50 acres or growing 5000 acres, the management practices are still the same.

NP: What about the varieties that are grown in Ireland versus here?

MB: The varieties keep changing every few years. One thing I have noticed, and it's still the case in Europe, the varieties turn over faster. New varieties would be introduced every few years from the breeding programs. Whereas in Canada the growers and the customers, the buyers, seem to be more traditional and conventional. If they get use to one variety, they don't like changing unless

there is a demand for it. That is one of the things that we do the Brewing and Malting Barley Institute has been doing going back over its 65 years and more history that is the focus which is to invest in breeding and research for better new varieties that are going to be better for farmers in terms of better yields and better resistance to disease and more chance of being selected for market of malting. But also, better for the customer so that the brewer can make better beer or maybe make beer more efficiently from those varieties.

As you probably have gathered from talking to many other people in the industry, breeding is a slow process. It doesn't produce automatic results. From a breeder initially making a decision to invest or to make a cross to try to achieve some improved trait, to cross two lines and they say, "I am going to cross this line and this line so that I get an improved trait that the customer tells us they want." It can be 10 years before there is anything selected from that that might have that trait. Then there it has to be put forward for registration and market testing. So it can be 12 or 13 years before a new variety gets brought into the marketplace. In many cases breeding is a case of mostly it is thrown out. Maybe it is only a small, minute fraction that is actually selected by the breeders that is going to be used as a potential new variety.

NP: In Canada, where are the major breeding programs for malting barley?

MB: For malting barley, we are very blessed in Canada. We have some very good breeding programs for malting barley. There are two major ones that have had great success in the past three decades. That is the Agriculture Canada breeding program in Brandon, Manitoba, and also the University of Saskatchewan breeding program in Saskatoon. The retired original breeder at the University of Saskatchewan, Dr. Brain Harvey, he was the breeder of a variety two-row malting variety called Harrington. That was introduced in the early 1980s and became the dominant variety until the late 1990s. I think it was the early 1980s, and then it was the late 1990s it declined.

That variety is still spoken about by customers all over the world because it set a new standard for quality and it was part of the production of many barely growers in Western Canada to satisfy the expanding demand that happened during the 1990s for malting barley with the expansion to the Canadian Malting company of malting capacity in western Canada to fill the domestic brewing needs but also the expanding export malt needs to satisfy the expanding beer production around the world. That variety produced at the University of Saskatchewan was key to that.

The other one that I mentioned was the Agriculture Canada program in Brandon and the variety that they produced is a variety called AC Metcalf and that became the replacement for Harrington in the late 1990s early 2000s and basically it took over from Harrington and it still is the pre-dominant variety. But one of the things that we are doing, and others, is that I am now telling people Metcalf is old. It is time to basically get rid of it in terms of in a polite way because the breeders from the University of

Saskatchewan and Agriculture Canada in Brandon and also a new malting barley program out of Lacombe in Alberta, they have produced some newer varieties that are better for farmers and are also better for customers. So one of the challenges we have is to try to get the customers to switch. Because customers can get addicted a little bit to the variety that they have already used and have always made good beer from this variety, so why should I change?

That is part of the work being done by our members, to switch customers to these varieties and then for farmers. Farmers will grow them especially if they are going to provide more bushels in their bins, but also if there is demand for those varieties. The main emphasis of our organization today is to develop better varieties, to invest in our breeding programs, so we can bring these new varieties on stream. That goes back to the original history that you are looking at as well going back to the post war years, 1947, when the brewers in Canada decided, "Well, we are trying to make beer out of barley that is basically selected from feed varieties." If we really want to get efficient and better at what we are doing, we need to do better. I can talk about that a little bit further in terms of the things that they put in place at that time.

NP: I have some questions about what you have obviously said so thank you. First of all, what was it about the Metcalf that made it preferably to the Harrington?

MB: From a farmer's perspective, it had close to 10 percent but 7 to 8 percent yield on average and 10 percent in some locations. Higher yield for growers than Harrington and better disease resistance. Harrington at that stage was old and was susceptible to significant diseases and that was the main one for farmers. On the quality aspects Metcalfe had most of the quality attributes that customers wanted from Harrington plus some more including the right amount of enzymes, the right level of protein, the right level of beta-glucan they had lower levels of beta-glucans in the malt than Harrington. Just to give an example, what that means is that the beta-glucans during the brewing process during the actual process can actually slow down the brewing process and if they are too high than it is a problem for the brewers if they are too low and if they are lower than the brewers can get faster [inaudible] so that is why Metcalf was able to do for the brewers. It was not an easy sell but once we explaining these to the customers and the customers started doing tests with Metcalf, and at that time I was working with the CWB on my market development work with them, we did some major work shipping actual whole lots of Metcalf to some of our brewers in China and going over there and talking to them about that and looking at the results. And eventually they said, "Okay, we are happy that it will satisfy our needs as a replacement for Harrington." While CWB was doing that with our exports markets, our Canadian malting companies were doing the same with their customers so that was the story of Metcalf.

NP: Two questions that come up in previous comments. Seed grain shipped as well as product to be the raw barley?

MB: Yes, the raw barely as compared to malt.

NP: No just for seed. For example, I am wondering does Harrington or Metcalf seed strain, could it be used elsewhere in the world to grow crops?

MB: Those particular varieties obviously were grown for Canadian production. They were bred and adapted to the Canadian growing conditions and are growth season which can be 90 days frost free so that is a challenge. Those varieties if they were grown in Europe would perform because it is a different climate. Those varieties are grown down south of the border in the US so varieties like Metcalf are major varieties there. That is the only success that I am aware of in terms of producing other varieties in other countries. It would be in the USA they are not really bred for production outside of North America or outside of the northern plains.

NP: The other question is—and this goes back to your comments about the Guinness Brewery which is well known around the world for its beer—you said that in Ireland they changed varieties quite frequently. Now the other thing that you said that a lot of times customers were reluctant to go beyond the tried and true. Yet Guinness would do this on a regular basis. Did the varietal changes make much difference to their standard, or did they have to vary?

MB: Not really, I think. The system in Europe is something that we are trying to encourage here in North America that brewers can still make the same standard of beer with another variety without necessarily having to stick to the same variety. In Europe, it was driven by a push from the growers in the seed industry. If there was a better variety that was going to give the grower more yield, well then the growers wanted to grow that and the brewers were prepared to accommodate that by switching faster, and this is something that we have started to do here in North America, but we are hoping that we can bring in that system even more because Metcalf is now in the market place for 12 years or 14 years so we need to move out of that one to the next one again. We are in that process. It is not [inaudible] alone but we are part of a discussion with other players in the industry to try and encourage that to happen.

NP: Who are the other players in the industry in the barley industry?

MB: On the industry side the traditional malting companies that have existed for many decades Canada Malting Company, Malt Europe Canada which is based here in Winnipeg just east of Winnipeg on [inaudible], Prairie Malt which is in Saskatchewan in Biggar, Saskatchewan, and Rare Malting in Alberta. Prairie Malt and Rare Malting were established more recently in the '80s and '90s at the time because the demand for malt production had increased especially with expanding export markets. Canada Malting and Dominion Malting had existed for many decades going back to the early part of the last century. It is interesting that the Dominion Malting plant here in Winnipeg would have been on the eastern fringe of the Prairies. The malt would have been shipped to satisfy the big brewers and somewhat south as well on the US side. Canada Malting originally had malt plants in Montreal,

Toronto, Winnipeg, and Calgary. The plants in Winnipeg and Toronto closed in the mid '80s and as the plant in Calgary expanded. That was also indicative of the shift where the markets were as there were more exports out of the West Coast, and it made sense to have more production there.

But on your question, those are the four main malting companies that influenced decisions on which varieties are to be produced and what they need for their customers. Other players in the industry are the brewers in Canada and the major brewers are basically now by in large part of Global Groups. Labatt are now part of the Anheuser-Busch InBev, which is the biggest global brewery in the world. They own brewers all over the world. Molson is part of the Molson Coors Group. We still have some Canadian brewers like Moosehead and Sleeman. Sleeman is also owned by Sapporo, though, in Japan. Some smaller groups like Big Rock and Great Western in Saskatoon. These are important influencers on what varieties are grown in Canada and they are part of our network as well that we work with and most of them are members of BMBRI.

We also work with groups like the New Canadian was 12 years in existence now, the Canadian Malt and Barley Technical Centre, which is across the street in the Canadian Grain Commission Building. They were established at the time when I was with CWB. We were part of the leading group pushing to invest in this new Canadian Malt and Barley Technical Centre, which is to support the market development for new varieties and customer education and customer technical support. They are a big help in that area as well and grain companies as well. Some grain companies are not really involved in malt and barley exports and some other grain companies are to some extent.

The other people that we are working with are seed companies. Groups like Seed Can, Campari Seeds, and FP Genetics. Groups like that they are part of the stakeholders we are working with because some of these seed companies, having invested in distribution of these new varieties, so they want to see some of these new varieties get adopted by the marketplace. They also want to know from the industry which of the old varieties are no longer needed and which of the new varieties are likely to succeed. That is part of the work we do is networking with these groups as well so that we have dialogue with them so that they understand what the needs of the industry are.

Of course the breeders and the researchers are a critical part of the network that we have because the breeders will—and it is like a tap—you can turn on the breeding tap or we can turn it off or we can, depending on what the needs are and if the breeders are not focused in the right areas, we do tell them, “Sorry, you are going to have to turn that tap off and make a new tap over here for you to work on something else.” That is one of the major things that we do as well. Each year there is a handout, which we have that we can talk about, where we give guidelines to the breeders as to what the new quality criteria are that they need to be working on for the next decade as opposed to what they did in the past decade.

NP: Let's move you out of Ireland. How did that come about? And I know you said you were looking for a change and looking how things were done elsewhere.

MB: I actually came to Canada--. I mentioned that I was working with the Irish Farmers Association as director of crops, which involved working with the grain committees for malt and barley and milling wheat but also committees for the sugar beet producers. I came to Winnipeg in 1990 to a World Sugar Congress with a group of a few of our executive committee with our sugar beet producers. That was "my eyes are open" so to speak. I had always been aware of western Canada and because of the work I did in Europe in grain, when I came here I took some extra time to meet people meeting people at the Canadian Grain Commission, CWB, and talking to some grain company people and just touring. It was the opportunity for me to actually visually see this whole system. I got fascinated with it and when I went back to Ireland that bug was in my system I need to go back and see can I expand my career opportunities by moving to Canada and working in this huge industry that is out there, compared to the relatively small industry I was working in. That is how that came about.

NP: What impressed you about the Canadian system?

MB: I think what impressed me was at the time we were at the conference at the Fairmont Hotel, and I forget what the name was, then but it was that hotel and within walking distance of a block of that at Portage and Main, everybody seemed to be where you meet one person and you talk about something, and he says, "Well, just go across the street to talk to somebody else and then you talk to somebody else." In one day right around Portage and Main, the whole network of how the Canadian grain industry was structured and the marketing system was there. I was just fascinated about how all of this operated and that is what impressed me mostly. Plus, it was, I think, June or early July, and the Prairies looked so beautiful. Nobody told me about the long, cold winters at that stage.

NP: I am sure it was accidental they didn't tell you about it.

MB: Maybe, yes. [Laughs]

NP: An opportunity came up?

MB: I decided to apply for a visa to come to work in Canada. I went through the normal channels with the Canadian embassy in Dublin, and they gave me my interviews, et cetera. And they gave me a visa to come to Canada, so it was two years later that I arrived here. At the time, I resigned my position in Ireland thinking that it was a temporary resignation when I am finished in Canada and have tried this out and decided and learned the experience I would probably be back in a couple of years. I met my wife

within a year and the rest is history. I am here still and now a Canadian citizen and have been for many years as well as being an Irish citizen.

NP: Did you apply at different places for a job, or did you have a job when you came?

MB: I had done some networking in Ireland before I came, so I had my short list of people that I had been talking to and they were saying, “Come. You will probably have no problem when you get here,” including the Wheat Board, so that is how it turned out. I had a couple of choices, so the Wheat Board was the one. Within six months of being here, I was working in a permanent position with the Wheat Board.

NP: Was there any connection between Canadian companies and organization like the Wheat Board in Ireland?

MB: Interestingly I didn’t realize it at the time, but I learned about it very quickly when I started working with the Wheat Board. I always knew that the hard wheat from Canada was used in the blends in the flour in Ireland and England because we used to be told that by the millers when we would sit down with the Irish Farmers Committees trying to negotiate the best possible price for the Irish soft wheat as they called it. They were saying, “Well, we have to improve this wheat with better wheat from Canada and importing the hard wheat from Canada.” My first job with CWB was Western Europe analyst where I would end up actually working supporting the Marketing Department on these shipments of wheat to Europe, mainly to UK, Ireland, and Italy. Actually, going back to Ireland on marketing trips with the wheat sales manager for Europe and our commissioners who meet these customers that used to meet when I was actually living in Ireland meeting them for the Irish farmers. That was interesting and unexpected benefit.

NP: Did the Irish Farmers Association feel that you had gone to the “dark side”?

MB: No, at all. In fact, they were always aware that they could not produce the type of wheat that Canada produces and that it was important for Canadian wheat to come into Ireland to be blended with Irish wheat so Irish wheat could be used in bread making. I guess there was a sort of synergy between imported hard wheat and the local soft wheat. No problems on that front.

NP: Who was the marketing director at that time or the one in charge of Western Europe group with the Wheat Board?

MB: Brian Squire was the marketing manager for Western Europe, and Brian is still with CWB. Gordon Matchett was the commissioner, and Gordon is still active in Winnipeg in business. Gordon was the commissioner that was connected to the European customers that we would have gone to see, and when we went on trade missions to Europe, we would have been with

Gordon and Brian. As far as I know, the last time I met Gordon he was chairman of the board of directors of Red River Co-op. That was about two years ago.

NP: I am a member of the Red River Co-op, so I can demand to see him because I am one of his members. I fill up twice a year, I think. [Laughs]

MB: Yes. He has got huge knowledge of the whole grain production and marketing in Canada because he started on the marketing side as a sales and marketing in CWB and rose up. I think at the time I was informed that he was, not sure if he was the only, but might be one of the few CWB commissioners that actually came up through the staff side rather than being a political appointment.

NP: Do you have memories of that first job and your first attempts to sell Canadian barley? Are there any stories that stick in your mind?

MB: The first couple of years with CWB was mainly on the wheat side, but barley to some extent on the market analysis side. The first attempts to sell Canadian barley were probably in the 1996-1997 when we went on our first missions to China. I've got massive memories of those trips because at that time--.

NP: Tell us about it because there would be so few people in Canada who would have the same experience.

MB: At the time, Chinese beer production was just beginning to expand because at that time the country was really starting to develop and consumption was less than 5 litres per capita. Whereas the average consumption in North America is close to 65-70 litres per capita. Our projections were if the Chinese even double their consumption between 5 and 10 litres per capita, that is going to be a huge amount of malting barley that we can supply them. At the time also there was the opportunity to expand malting barley exports from the West Coast. We had recently established a CWB office in Beijing, so expanding malting barley exports to China was one of them—and wheat. But from my perspective, because I was working on the barley side at the time, was a major objective.

We would go on trade missions to China about this time of year in November or December at the end of the harvest once we knew the quality and we had data from the Canadian Grain Commission. We would put a mission together including one of our CWB Commissioners, our manager of our CWB Beijing office, myself as the malting barley development program manager, and some technical people from malting companies and the Canadian Grain Commission. We would spend about two weeks to two and a half weeks in China touring around, having seminars that were hosted by some of our customers or potential customers.

At that time China—and it is still a country that obviously is changing—but cranes everywhere because all of these new major modern office buildings and towers that existed in some of the cities in China were really only being built at the time and so you would arrive there and every street you would just look around as far as the eye could see cranes and scaffolding, because the construction was happening. Obviously, the smog and all of that—the industrial side of China—was something I had never experienced before. Just meeting the customers in China and explaining to them the quality of our malting barley and what it could do for them, and their keen interest in asking us was I think something that was really enjoyable.

The courtesies of the Chinese and how they do business and the importance of hosting you to a dinner and how business is done and all of the toasting that would happen at these dinners by them and welcoming speeches, et cetera, that was all part of the business side. You had to develop these relationships and you had to be aware of how the Chinese do business. That was really interesting learning experience for me. In my current position, I do not go to China. My work is mainly in North America, but for those 10 years from 1996 to 2006 with CWB, I must have gone to China probably 15 times and maybe more on malting barley trade missions separately. I have lots of memories of it.

NP: Were the trade missions successful?

MB: Oh yes. The Canadian malt and barley exports to China, and until recently, is the biggest market along with USA for Canadian malting barley. Some years it is the biggest market, others years but similar with USA in terms of malting barley exports. The Chinese malt capacity has really expanded over that time. Some of the new malt plants that were built in China at the time the concrete was being poured and people were just going around with wheelbarrows, et cetera. Whereas now those malt plants are some of the most modern malt plants in the world. We are not the only supplier. Canada, Canadian malting barley is one of the origins for China, but they also import malting barley from Australia and to a certain extent from Europe.

When I moved over to the Brewing and Malting Barley Research Institute from CWB, I was moving back into the domestic industry from the export industry because our members are involved in supplying domestic brewers but also making the malt in Canada to export malt rather than raw barley. But there was also a respectful business relationship between the domestic side of the industry and the export side of the industry. Everybody agrees that the objective is anything that promotes barley production in Canada is good. It is in our interest to work together for both healthy domestic production and export production.

NP: Malting barley, what is the balance between demand and supply? If Canada produced more, could they sell it?

MB: Again, I am not working on the actual marketing analysis side of the industry now as much as I did 15 to 20 years ago. But there is a world demand for malting barley, and it really depends on the quality and also depends on supplies that are available from

other countries like Australia. I think it would be true to say that there are industry members concerned that Canadian barley acres have dropped in the past 5 to 10 years, especially in the past 5 years.

We used to produce over 10 million acres of barley and some years close to 12 million tonnes of production. Now we are down to about 6 million acres, maybe 7 million tonnes of production. That puts more stress on some of our customers, because in a year like this where we have weather problems in the Prairies, we have less malting barley that we can select, that is of selective quality because if it gets damaged by sprouting or weathering then we don't have enough to supply our customers or our malting companies. Grain companies are scrambling to find quality that can be acceptable to customers. I think the short answer to your question, based on current acres, is yes. If we could grow more, yes, we could sell more.

NP: What has led to the decrease of production do you think?

MB: A number of factors. The advent of other crops. Canola is now the first choice for farmers in the main prairie growing areas and then wheat and barley are choices in the rotation with canola. The challenge for barley is to make sure that we are competitive with wheat—the price but also the varieties that the farmers can grow—that there is demand for them so that the farmer will decide to put barley in as an option, that they won't just decide to put wheat in and ignore barley as an option in the rotation with canola. That is in the main prairie areas.

Then in the southern Prairies, especially southern Manitoba, soybeans and corn are now major crops. Fusarium head blight was also another issue that affected barley production in some areas such as Manitoba. I think those are important factors that have affected barley production in recent years. The other crops and also it is easier for farmers to produce canola with one spec, which is basically the oil content. Whereas with malting barley, there are 10 specs. It has to have all the right protein, the right germination and a number of other factors that would be selected from. With canola, with reasonable weather conditions, you are going to have it selected for marketing. It is more of a challenge with something like malting barley.

The other issue a little bit has affected it, which gets back to the core of some of your historical work that you are interviewing, is the changes in the elevator system. At the high-throughput elevators, there are not as many of them obviously because they are bigger and the high-throughput and a number of other elevators are geared towards the collection and shipping of 100 car lots of major grains. Whereas malting barley is more specialized and the production and selection of malting barley in the past might have been more facilitated with a greater number of smaller elevators, distributed across the Prairies. So when a lot of these smaller elevators closed and the high throughputs became the key shipment route for grains, malting barley is not a priority for some of those high-throughput elevators. The companies are selecting the grains to ship through those high-throughput elevators. The malting industry in Canada is adapting to that by contracting out more with farmers. They are going back to the farmers and are

contracting with farmers and for delivery either directly to the malting companies or delivery to specialized elevators that are working with the malting companies. The industry has had to adapt and change.

NP: I was just at a session this morning “Fields on Wheels” and they were talking, and someone had gotten up and asked about what is the situation with producer cars? Would produce cars be a way to handle--?

MB: There are some companies using producer cars especially companies for malting. Some of the companies that are shipping to the US, I cannot name names. It is up to those companies to talk to you directly about how they do their business, but yes, there are some companies in the US that are using agents in Canada to ship producer cars. But that can only satisfy a certain amount of the business. It cannot satisfy all of the business.

NP: We talked about the size of a crop that we put in in Canada for malting barley. You mentioned that the high-throughput elevators are hoping for 150 cars at a time. What is the numerical match up? If 100 cars are too many, is 25 cars a usual shipment?

MB: I think it depends again--. And I am not involved in the logistics side of some of the malting companies and how much they can take in at any one time. I know some of the malting companies have built more storage capacity now at their malt plants so that they can take in a greater number of cars from the country at any one time. In malting plants in western Canada, the biggest batch size they have is about 300 tonnes. I think one of them is 400 tonnes, but the biggest is 300 tonnes and some of them are just about 100 tonnes per batch of malt at any one time. That puts it into proportion. Again, I don't have an exact figure but definitely it is 100 cars shipment of malt regularly out of a high-throughput elevator is not something that is part of the norm unless it is going to the West Coast, but that is a different export again.

NP: Speaking of export versus domestic use, the Canadian owned companies and therefore Canadian brewing facilities were closing down over a period of time. One I heard earlier is Labatt's for example here in Winnipeg. What kind of impact did that have on the marketing? I am thinking now that you also have the smaller batches so anybody producing malting barley close to Saskatchewan and the Western Prairies they could just ship directly to. What kind of impact did it have to the brewing industry moving mostly south, I guess?

MB: Yes, definitely in the Prairies a lot of the small regional breweries did close. There are still major brewers, and those big brewers have major breweries in Toronto and in central Canada. So malt that is produced in western Canada can be shipped as malt. For example, in Winnipeg, to Toronto. Also, you have another avenue. Let's say Canada Malting Thunder Bay, which is still a fully engaged malting plant and it produces malt. Barley is shipped from the Prairies to the Canada Malting plant Thunder Bay and the malt is made there and then it is shipped on to Toronto or a brewery further east for brewing there.

Similarly, Winnipeg, there is a small craft brewer here in Winnipeg. They will buy through a distribution system from some of the malting companies. You don't have to have the malting plant in the city where the brewery is. Canada Malting also has a malt plant in Montreal. They also use barley from Western Canada and that supplies the breweries further east.

On the west side, Canada Malting and Rahr Malting are in Alberta. They supply the west side of the country as does Prairie Malt. But also, south there is a route. A lot of Canadian malt that is produced in our malt plants both here and in Winnipeg and in Alberta and in Saskatchewan can go south to the US because the US brewers they don't have enough barley or malt to supply all their needs. They import a lot from Canada. That is a major avenue for us. It is not just raw malting barley that goes down to the US to be malted in the US. We also export malt from Canada from our malt plants to the US brewers.

NP: Malt is not just used for beer?

MB: Primarily beer. There are very small amounts for speciality areas that maybe used in food production.

NP: But the vast majority of it is for beer?

MB: Yes, vast majority of it is beer.

NP: Anything else that you would like to comment on from your time with the Wheat Board and market development beyond the Chinese market?

MB: The Chinese market in terms of the growth in malting barley exports, and at the same time switching to a varieties like Metcalf and Harrington as part of that promotion, we have discussed that. Within Canada, concurrent with that, the Canadian malting companies were also switching to varieties like Metcalf. I don't think there is anything to add in relation to the Wheat Board other than that with the elimination of the CWB single desk, so to speak. The Wheat Board, in the past, there was the whole malting barley pool. Everything went through the malting barley pool at CWB. It was a very important selection.

The malt and barley storage and selection contract system whereby barley was selected by a malting company or a grain company, but they would have to sign a selection and storage contract with CWB, which entered into the CWB pool, and it was resold back from the CWB pool to those particular customer streams, whether for export malting barley or domestic malting company. That whole system has changed. Now it is really up to the grain companies themselves and the malting companies to grow the malting barley and select it direct from farmers. The industry is adapting. I am not saying that the previous system is better or worse than

what is there now. It is just that the industry has had to change and adapt to get more involved, whether via CWB or involved directly with farmers.

NP: So quite conceivably there could be a dip in supply and potentially demand given the marketing work that you were involved in at the CWB. I am just thinking that farmers saying, well, you said canola is a lot easier crop to grow and without encouragement from a central system, it could be a little bit--.

MB: Yeah, but the drop in barley in acres was well before CWB got that and was eliminated. So I think it wasn't due to the elimination of CWB single desk. I think it was already there due to the advent of the canola production and opportunities for those crops and new crops like corn and soybeans, et cetera, and the high-throughput elevator as well. Can we just take a little pause?

NP: Sure. **[Audio pauses]** One of the questions that I have here is the connection of your organization and the whole malt barley operation with CGC. What kind of meshing is their of--?

MB: Historically there is a very strong connection between the Brewing and Malting Barley Research Institute and the Canadian Grain Commission. As I mentioned earlier, at the end of the Second World War, Canadian brewers the maltsters were faced with a pretty poor choice in terms of what they had to make beer with. They decided at that stage that they needed to really push hard to improve the quality of Canadian malting barley production. There were two aspects to that. One was breeding and research that wasn't going to produce an immediate result, but they needed to invest in breeding and work closely with breeders and provide funding to breeders such as the University of Saskatchewan and Agriculture Canada, but also encouraging better malting and barley production practices.

On the latter one, they created what is called a malting-barley-quality competition, which was to get farmers to produce better barley and submit samples and win prizes. They had satellite competitions all over Western Canada. As part of that, the winners--. And there would be Manitoba winners and--. And the supreme winner would be feted at a national banquet and receive a presentation from the Canadian Minister for Agriculture. They really went out to really push the importance of producing better quality.

As they started to invest in the breeding in the late '40s, 1947–1948, they set up this organization, and at the time they called it the Barley Improvement Institute. They renamed it 10 years later to the Brewing and Malting Research Institute and they worked very closely with scientists with Agriculture Canada and the Canadian Grain Commission—the Board of Commissioners, as it was called then—to work with them. Rather than recruiting other scientists, they actually brought in Agriculture Canada and CGC

scientists and they invested in laboratories here in Winnipeg, that is the brewers and maltsters, the Board of the Brewing and Malting Research Institute.

They also used the expertise of a very important man, a professor called T.J. Harrison, who had in the University of Manitoba in the late '20s and early '30s built his own malting barley evaluation equipment that micro-malting and testing equipment and that equipment continued to operate in the '30s and '40s. All that got moved into downtown Winnipeg in the old Grain Exchange Building. The scientists from CGC and the federal institutions basically worked with the BMBRI, so it was a joint venture so to speak.

It was a little bit later that the barley lab at the Canadian Grain Commission was formed in Winnipeg. They took over the malting analysis equipment and the Brewing and Malting Institute built its own pilot brewery in the old Grain Exchange Building. So the malt was made by the Canadian Grain Commission, and BMBRI did the brewing. All of that was related back then to the actual quality requirements for registration. If it passed all of these tests, well then it got approved for registration as malting barley varieties under the government Variety Registration Regulations under CFIA.

That continued until about the mid 1990s. At that stage the industry BMBRI working with CGC and others decided well we don't really need to do pilot brewing with the varieties. We still need to make malt, but we don't have to do pilot brewing for registration purposes. So they closed down the pilot brewery and continued with the Canadian Grain Commission in the collaborative testing. We still do that.

BMBRI does collaborative testing of the elite breeder lines. I have just received samples from eight sites around the Prairies, and we have shipped four of the best sites for micro malting. Three of them are done by our members, our malting company members, and one of the sites is done by the Grain Commission barley lab in Winnipeg. That analysis data would come back for discussion with our industry colleagues in February to decide which of these varieties should be registered. And that also feeds back into the grading system. For a variety to be eligible for CGC grade of select malting barley—two-row malting barley, for example—it has to have passed the main quality criteria that are approved by the quality evaluation team of the industry which is part of the registration system. So that the historical close tie between BMBRI and the Canadian Grain Commission and the scientists in terms of varietal testing and evaluation still continues today. We have adapted to it as needed to suit the needs of the time.

Interestingly, I mentioned Professor T.J. Harrison who started at the University of Manitoba developing malting barley testing equipment—malt analysis equipment—he became Assistant Commissioner at the Canadian Grain Commission and then, whether at the same time or shortly after, he finished as Assistant Commissioner of Grain Commission, became the first managing director of this institute the BMBRI. He was my predecessor going back to the very beginning in the late 1940s early 1950s. I think Canada

success international with malting barley production and the quality of our malting barley exports and our malting exports, I think can be directly traced back to that very close relationship and collaborative work between BMBRI and CGC in the late '40s and early '50s.

NP: What happened to the little pilot brewery? Is it still around?

MB: Interestingly the little pilot brewery at the Brewing and Malting Research Institute was closed in the late 1990s was taken over by CWB for a couple of years, and I was with CWB at the time. Then when we established the Canadian Malting and Barley Technical Centre, and part of their mandate and their role is to pilot malting and pilot brewing for commercial testing purposes and customer education, they built a new pilot brewery, bigger capacity, but then they found they needed the old BMBRI one which was smaller and smaller capacity, so they took bits of part of the old BMBRI brewery and reinstalled it so it still exists in the new Canadian Malting and Barley Technical Center, in a fashion there as well, for some of their real small pilot-brewing work that they do.

NP: You mentioned in the '40s this group said that they really needed to improve the quality of Canadian beer. What was wrong?

MB: The barley. Basically, it was pretty much feed varieties.

NP: What does that give you?

MB: Feed varieties, it can germinate provided it hasn't sprouted, but the protein may be too high, the beta glucans in the malt may be very high which causes stickiness and slowing down of filtration of the brewery, or generally they extract the amount of ferment they extract they can get from the malt is low. They focus on all of these things they wanted to improve, and they are still very much a part of our objectives when we talk to the breeders. These are the original ones that were set out in the late '40s and most of these are still in place it is just that you need to keep raising the bar on these to make them even better.

NP: A production issue, efficiency and so on.

MB: Definitely, from the processing-quality perspective those were the needs that I just mentioned. From a farmer perspective they also wanted ones that were efficient and could produce better yields for farmers, so farmers would grow them as an alternative to wheat, et cetera, so that is still a major objective are that are disease resistance or resistance to sprouting. There has been success in some but still a challenge in others even 60 years later.

NP: Given the difficulty of getting the quality malt out of poor-quality barley, would the beer drinker notice any difference?

MB: At the time, probably no because the beer drinker had nothing to compare with, but I guess if you took one of those barleys from then and grew it today and make beer with that compared to another variety, yes, the beer drinker would know the difference. More importantly, though, I think the brewer would know the difference because the brewer would say, “I can’t make beer with the modern technology in my brewery. I cannot make beer with the old varieties.”

NP: You have mentioned I think some of the major roles of the Brewing and Malting Barley Research Institute. Are there other projects that you have not had a chance to mention?

MB: We have discussed some of the research—breeding research priorities—that we give to the brewers. I have not got into the detail specifications. Moving to the modern day, we are currently involved in a major initiative with the federal government and some other agencies. It is called the Barley Cluster. The federal government currently spends its research and innovation money for agriculture under different programs and under what they call Growing Forward. We are now into the second portion of Growing Forward under the present government and it is called Growing Forward 2. Within that, there is a barley cluster for research and innovation. We decided as an industry group, “Let’s form a cluster. Let’s all work together to maximize the amount of government funding we can get for barley breeding and research.” We are now into the second year of an \$11 million barley breeding and innovation cluster, which covers over 20 different projects. BMBRI is the malting and brewing industry partner working with the Alberta Barley Commission a farmer agency and the Western Grain Research Foundation with grower funding. We are putting the grower-industry dollars on the table. Then the government is matching that close to 3 to 1. So for about \$3 million of growing industry money, we are getting \$8 million of federal funding for a total cluster of \$11 million over five years.

That is focusing on trying to accelerate progress on some of the challenges that we need to work on across a number of aspects of barley production, including malting barley production, both in terms of improved production and disease resistance, but also in terms of improved quality. That is a major part of the work we are doing today and the work I am doing today is being involved in this funding consortium and the related management of the projects.

NP: We have talked a lot about the improvement of the initial product, disease resistance and so on. Is there anything at the malt stage that is being researched?

MB: There are a lot of new processes related to new varieties that are part of the breeding and research programs. For example, one of the projects that we are funding with the Grain Research Laboratory at the Barley Research Lab at the CGC—which is a continuation today of what was started 65 years ago—with Dr. Marta Isadorchuck, she is doing a project on investigating the role

of non-starch polysaccharides and changes in the composition of those in the malting and brewing quality of the actual barley. And her work then will lead to potentially the breeders taking that on to produce better malt and barley varieties incorporating her research into their breeding programs and in turn for the brewers. That is an example of one of the projects that we are working on.

NP: Just before you go on from there, what is it about the current practice that you are hoping to improve?

MB: Her area of research has found that there are some impacts on wort—wort is the liquid in the brewery, the first stage before the beer is actually formed—that there are potential differences in flavour and mouth feel, et cetera, related to the content of these non-starch polysaccharides. That is when you get into some of the real technical aspects of scientific research. They do really drill down into some of the biochemistry. Brewing is all about biochemistry really.

Another interesting project that they are doing which we are giving some funding to the University of Manitoba, Dr. Dilantha Fernando, in their plant science department. For many years we were not giving any money to the University of Manitoba but he is now doing a project in conjunction with scientists in Agriculture Canada in Brandon trying to improve the ability for the breeders to develop varieties with better resistance to fusarium head blight, which is an interesting going full circle, because that is where Professor T.J. Harrison came from in the '20s and '30s to try to improve malting barley out of the University of Manitoba. Now we are starting to put money back into a new scientist at the University of Manitoba, focusing on probably some of the things he was looking at even at that time.

NP: Is fusarium a disease particular to barley?

MB: Fusarium affects most grains. For malting barley and feed barley it is serious because not just that it affects yields and maybe the actual quality of the grain in terms of its plumpness, but it is the mycotoxins that are created from the fusarium infection. With malting barley, the serious one is DON, which can affect the actual ability to make good beer. It actually can cause gushing when the beer is formed and the beer is made, and in the bottle, it actually can cause a reaction for the beer to gush when you open the cap—plus, obviously, the health impacts of this.

NP: Was that “DON”?

MB: DON.

NP: A short form?

MB: Deoxynivalenol.

NP: Okay. I pity the poor person who the transcription of this part.

MB: The same mycotoxin that is a concern to the wheat in this industry also.

NP: Is it a particular problem in Manitoba you say?

MB: Manitoba now even and southeastern Saskatchewan are the areas that are most severely affected by fusarium and have been. But fusarium is now marching further west all the time.

NP: Is it prevalent in the States as well?

MB: In the Midwest states, yes. To a certain extent. even though Alberta and that area has historically not been prone to fusarium, there is now evidence that it is starting to show its head there also.

NP: Is it wind borne, or soil borne?

MB: It lives in the soil so it can get transferred through grain or through crop residues and carry over from seed, et cetera.

NP: This just allows you to wrap up some of the points that you have mentioned previously. What part have you played, and the groups that you have worked for, what part have you played in Canada's success as an international grain trader? In this case in malt and malting barley.

MB: I would say I have been privileged to be part of the network. Canada is a network. No one person or singularly individual can claim to be the reason for any major success. I think Canada's success in many areas—whether wheat or barley or malting barley or brewing—it is because of the network and the value chain that happens. In our case, the malting and brewing side the value chain starts with the breeders and the researchers and the farmers and the seed companies. Our industry---. And currently I am as CEO of BMBRI charged with fulfilling that obligation, working with those people at the early part of the value chain on the breeding and research and early production side so we would get the best varieties and produce the best varieties and then working with others further on the value chain in terms of the market developers and the commercial people. I think we have a vital role to play in being the two-way conduit of information, both back down the line to our breeders and researchers but also out along the value chain to the customers.

We are investing a significant amount of effort, time, and resources in developing our science and innovation so that we can remain the best in the world. I really truly believe we have the best malting barley in the world and that is with reference to my experience in my previous career in Ireland. The challenge is to maintain that. As I mentioned earlier, the foundation was laid by others 60-65 years ago and even before that. It would be a shame for somebody to say, “Oh well, let’s just give it up. Let’s leave it to private industry. Private industry will do it all.” That won’t happen. Private industry is an important part, but we need to bring private industry in with us to work with us. You do need to have a coordinated effort. What we do on the malting and brewing side, others do it something similar on the milling side. You have spoken to others on the milling side, of the wheat side of our industry. To me that is how I would describe the role I have played is to continue the great work that has been done by people in the past and make sure it doesn’t get lost and that it continues on into the future.

NP: You mention that you sincerely believe that Canada has the best quality barley, malting barley. What does that--? If you even take the malting barley that your family just to do the circle, that your family grows in Ireland, what is the quality difference between?

MB: The difference is the ability to produce the beer that customers want. The ability of the customer to use our malt to make the beer that they want. It is not a surprise that Canadian malt is demanded by the Japanese. They need our malt to make the beer that they want. It is not a surprise that as beer production expanded in Latin America that they came to Canada to buy Canadian malt. They use also European malt, and they use Australian malt as well, but Canadian malt they see the value of it. They see the attributes. Those attributes are the product of the breeding effort. As I mentioned earlier, lower protein, higher enzymes, or the right level of enzymes, lower beta glucans, making sure the malt doesn’t peel when it is taken into the brewery. You need—I am getting into some of technical aspects—but these were all things that didn’t happen by accident. They happened over a period of decades with the breeders working on them. I think we are now reaping the benefits of that.

NP: If you were to take a quantity of barley from your home farm and a quantity of barley from a quality grower in Canada and try to make beer from it, I guess I am getting to the point are we looking at and you said in the milling situation that you were growing wheat for milling.

MB: Soft wheat.

NP: And you had soft wheat, so it had to be mixed with better quality Canadian wheat. Are we looking at the same kind of thing in the different quality or is it just easier to use?

MB: To some extent, yes. Some of the European malts have some good attributes but they don't have the enzymes levels that Canadian malts have for example. So therefore, some brewers will say, "I will buy some European malt, but I have to buy Canadian malt because I need to get more enzymes and I can only get that in the Canadian malt." That is what happens with brewers. I am not saying there is anything wrong but in terms of some of the attributes that brewers need they can only get it from our varieties.

NP: Yeah, Canada!

MB: Yeah, Canada!

NP: What are you most proud of when you look back on your career to this point? You can go back to CWB, and you can even go back to the Farmers Association if you like. It doesn't have to be a huge, big thing or just a general feeling of, "Wow I have been doing good work." Is there some little project that you took along that brought you--?

MB: Hm, well I can think of a number of projects. Some of the things I am proud of that I was proud of 5 years ago, I may no longer be proud of them. The reason being you move to new things. For example, five to ten years ago I was very proud of being part of the push to develop better markets for Metcalf and another one called CDC Copeland, a newer one for the University of Saskatchewan—new varieties that replaced Harrington. When I worked in the Wheat Board, I was very proud of being part of that and pushing to make that happen. Now seven, eight, ten years later I am saying, "That happened, but now we need to do something. They need to go." We need to move, to get rid of that and bring in some of the new products—the outcome of our breeding and research work.

That is just an example. Sometimes the pride lasts for a couple of years, and then you want to work on something new. I am proud of being part of the industry effort and maybe leading some of it to develop better markets for varieties. On the bigger career picture, I am proud of being able to fulfill my ambition to work in the industry that allows me to work ultimately helping farmers, having come from a farm. Whether it is helping Canadian farmers or Irish farmers, I think that traces back to my roots. My dad was an innovator. He was a founding member of the Farmers Association in Ireland, and I was always aware of that and maybe that is why I went into the career that I did. For some reason I never graduated to the complete private industry. I was always working for something that I saw that would ultimately help out farmers.

NP: And definitely helps the industry.

MB: Oh yeah. At the end of the day there is a mutual benefit, yes.

NP: What you need, I guess, is a contest between Guinness and a western Canadian brewery with the combo product from Ireland and Canada. Just to top off your career.

MB: I won't go there. But the world brewing industry is so integrated now. In many cases brands like Guinness are brewed under license somewhere else in the world. They may be using Canadian malt.

NP: Yes. I did talk to the person at Canadian Malting, and I haven't interviewed him yet, but I did talk to him, and he had talked until just recently malt being produced in Thunder Bay was going across our pond, Lake Superior, into the States and was used in just about beer that was being produced. I think since then there has been a shift to Alberta delivery.

MB: The interesting thing, too, craft brewers are now starting to--. And they have already been expanding rapidly over the past 5 to 10 years and are continuing to expand. The brewing industry has gone through a type of a cycle whereas in the early part of the last century a lot of the small breweries closed down or were taken over by the big brewers then you ended up with just a few major brewers and those few major brewers still exist. But now the small breweries are reopening. There is a demand and interest in these craft brewers, and it is all good because they all need barley, and they all need malt.

I think the other thing too with the Thunder Bay connection—the fact that the Canada Malting plant in Thunder Bay and the old Dominion Malting plant, which is now Malteurop, which is now here in Winnipeg are still operating—I think is a testament to the success of what has been happening in western Canada with barley breeding and development. Where you have seen other places close down there are still operating because they are using the raw materials from the Prairies. We have seen other businesses in Canada close down and the business has gone somewhere else in the world. But because of the work that has been done in Canada, those businesses still exist and are still very important to our economy.

NP: We talked before we were on tape about our project in Thunder Bay and actually it does have western Canada connections as well to try to preserve the history that has gotten us to where we are, but at the same time celebrate what is and we hope to continue and improve. Given that the focus of that particular centre, if we ever get it established is the public, what would you like to see featured in something like that? What part of the history do you think is maybe the most important, the fact that we are looking at the science centre related to grain and the production of the products that come from it?

MB: I think depending on your audience, if your audience is the general public that really don't know about what happens in terms of western Canada and how grain is produced and where it came from originally in terms of the research efforts that go into it or the quality attributes. You just don't make bread from any wheat, or you just don't make beer from any barley. I think a basic understanding of that would be good. Anything that can help to educate the public that everything is linked. The elevators in

Thunder Bay would not exist or the malting plant in Thunder Bay would not exist if the other upstream work was not done—not just currently but in previous decades to make western Canada what it is in terms of the major grain producing area in the world producing quality grains.

NP: And also, where that product ends up!

MB: True.

NP: I mean, as you said, across the world. Unknown to an awful lot of people in Canada and probably in western Canada. But they are more likely in western Canada to know it.

MB: Yes.

NP: Great, thank you very much. Anything I should have asked you that I didn't?

End of interview.