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STATE DEVELOPMENT AND REGIONAL INDUSTRIES COMMITTEE

Members present:

Mr CG Whiting MP—Chair
Mr JJ McDonald MP
Mr MJ Hart MP
Mr RI Katter MP (via teleconference)
Mr JE Madden MP
Mr TJ Smith MP (via teleconference)

Staff present:

Ms M Telford—Assistant Committee Secretary
Dr K Kowol—Assistant Committee Secretary

PRIVATE ROUNDTABLE DISCUSSION—INQUIRY INTO THE IMPACT OF CLIMATE CHANGE IN QUEENSLAND AGRICULTURAL PRODUCTION

TRANSCRIPT OF PROCEEDINGS

(Private)

WEDNESDAY, 22 MARCH 2023

Brisbane

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The committee met in private at 10.34 am.

CHAIR: Good morning. I declare open this roundtable discussion for the committee's inquiry into the impact of climate change on Queensland agricultural production. My name is Chris Whiting. I am the member for Bancroft and chair of the committee. I would like to respectfully acknowledge the traditional custodians of the land on which we meet today and pay our respects to elders past and present. We are very fortunate to live in a country with two of the oldest continuing cultures in Aboriginal and Torres Strait Islander peoples, whose lands, winds and waters we all share. With me here today are Jim McDonald, member for Lockyer and deputy chair; Jim Madden, member for Ipswich West; Michael Hart, member for Burleigh; via videoconference Robbie Katter, member for Traeger; and via teleconference Tom Smith, member for Bundaberg.

The purpose of today's discussion is to assist committee members with building a strong knowledge base upon which to take the inquiry forward and identify target areas for further consideration. This roundtable discussion is a proceeding of the Queensland parliament and is subject to the parliament's standing rules and orders. Only the committee and invited witnesses may participate in the proceedings. Witnesses are not required to give evidence under oath or affirmation, but I remind witnesses that intentionally misleading the committee is a serious offence. The proceedings are being recorded by Hansard. We will provide you with a copy of the proof transcript to check.

The committee has resolved to conduct this round table in private to support free and frank discussion. The transcript is for our records only and we do not intend to publish it. If we do decide to publish the transcript, we will only do so after notifying you in writing and will give you the opportunity to provide a submission as to whether the transcript should or should not be made public. I ask people to turn their mobile phones onto silent or turn them off during proceedings.

BEER, Mr Michael, General Manager, Rural Futures, AgriFutures (via videoconference)

McINTOSH, Ms Sharon, Policy Adviser for Water and Energy, Queensland Farmers' Federation

RANDALL, Ms Michelle, Policy Manager, Environment and Sustainability, Cattle Australia (via videoconference)

WALLACE, Mr Scott, Hort360 Manager, Growcom (via videoconference)

CHAIR: Welcome. I invite you to make a few introductory remarks to give a general overview on the effect of climate change in Australia or, more particularly, the challenges, the opportunities, the existing programs that support adaptation and resilience, and the ways that policymakers can better support farmers in this area. We will then move to some questions from the committee members. Ms McIntosh, we will start with you.

Ms McIntosh: Good morning, all. Thank you for inviting the Queensland Farmers' Federation to be here today to speak on a matter that is quite dear to our heart. We have been doing a lot of work at Queensland Farmers' Federation for quite some time with regard to different climate adaptation strategies. First of all, to give an overview, we are all aware of climate change now and the impacts we are seeing globally. The effects of climate change on agriculture can and are in some regions already resulting in lower crop yields and nutritional quality due to long periods of drought, increasing heatwaves and more frequent flooding, as well as increases in pest and plant diseases. We have also seen the exact opposite with higher crop yields due to CO₂ fertilisation, which increases the rate of photosynthesis in some regions as a result of increased atmospheric CO₂. These effects are unevenly distributed across the world and are also unevenly distributed throughout Australia and are caused by different changes in temperature, precipitation and atmospheric carbon dioxide levels due to global climate change.

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One thing we are not prioritising sufficiently is the impact to our water and land resources and, ultimately, our food security. It is predicted that Australia's population is expected to reach 35 million by 2050 which will exacerbate the rate of change and demand in our food production system which at this point in time is a series of factors and events that will increase the threats to Australia's position as a food-secure nation. Land use, social and environmental challenges, available arable land and water, coupled with increased drought and flood events from climate change, are likely to threaten Australia's position as a food-secure nation.

Immediate provisions for the protection of agricultural land which QFF are strongly advocating for—increased controls and regulation over urban land planning and development; adequate legislation safeguarding productive land from mining and other developments; addressing and implementing a realistic strategy for skilled labour; and increasing agricultural research and development—are paramount to ensure Australia remains both a domestic and an export supplier of world-class food.

I have quite a significant amount of information which I can go to later, but I would also like to today, as part of our inquiry, give you an overview of the climate adaptation strategies in agriculture. At Queensland Farmers' Federation we are looking at: fuel, fertiliser and chemicals and the impacts on agriculture with regard to those aspects; water and energy; water infrastructure, along with infrastructure required for logistics; and opportunities and challenges. We do have a series of recommendations. I happy to discussion them later when we have the time.

CHAIR: Excellent. We will go in depth on those areas that you have nominated.

Mr Wallace: Queensland Fruit and Vegetable Growers, or QFVG, is the peak body for production of horticulture across Queensland. Growcom is the service arm of QFVG, and that is where I sit within providing growers with on-farm technical support services, extension programs et cetera, as well as a well-recognised BMP process, which is Hort360. I concur with what Sharon has opened with in that, for horticulture in particular, we are seeing a significant shift in our production cycle. Growers traditionally have operated in a three- to five- out of 10-year process—they are the good years—and we have seen a shift down to probably one to three out of 10 years being good productive years. We have for a number of years—probably the last 10 or 12 years—gone through a lot of climate adaptation programs, but we are yet to see a lot of that hit the ground. There is a lot of background information that can be put forward, especially through the AgSAP process and the QCAS process that occurred in 2017 onwards. There is a lot of background information. We are looking forward to pushing that forward and getting a few more actions on the ground. We have identified a range of opportunities that we can move forward on, and we are looking forward to that conversation a bit later.

CHAIR: Thank you, Scott. We will certainly talk more in depth about the opportunities that you have talked about.

Mr Beer: AgriFutures Australia certainly welcomes the opportunity and invitation to contribute to and attend the inquiry. I wish to make a few comments about who we are and what we do to provide some context for today. AgriFutures Australia is one of the research and development corporations that service research, development and extension, or RD and E, needs of Australian rural industries. We have a unique statutory mandate to invest in national RD and E in 13 levied industries and a variety of non-levied industries, but also including innovation and leadership programs that strengthen our rural industries in regional communities. To give a couple of examples, we invest in RD and E which aims to drive growth and development of emerging high-potential agricultural rural industries. Some of those examples include coffee, sesame, hemp and seaweed. We develop and deliver programs that respond to specific workforce and leadership needs for those working in the agricultural sector. We deliver programs that futureproof Australian rural industries by identifying and responding to national challenges and opportunities which impact on the sector, and we engage with the global agrifood innovation network to ensure Australia is a leader in accessing, adopting and developing as well as exporting agrifood technology.

Given the breadth of plant and animal agricultural industries produced in Queensland, I can provide further details from a general agricultural perspective as well through today, but there is clear alignment to some of our specific industries in our research that is primarily produced in the tropical and subtropical climates of your state, and they include, as I mentioned earlier, coffee and sesame, but also ginger. We also deal with general areas around biosecurity, water security, pest disease and weed management. Thank you.

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CHAIR: Thanks, Michael. Michelle, we have just heard some introductory remarks and we will chat to everyone in depth in a short while. I invite you to make some introductory remarks about the work you do with Cattle Australia. Can you outline some of your initiatives in this area of climate change?

Ms Randall: Thank you for the opportunity to be involved in the discussion today. Cattle Australia is the national representative body for Australia's grass-fed beef producers. Cattle Australia has recently been launched, but prior to that we were known as the Cattle Council of Australia. We have a new structure but are continuing on with a lot of our policy positions in work. We work with Meat & Livestock Australia on an initiative you have probably heard of called Carbon Neutral by 2030 or CN30. It has been my role to help producers to understand what that means for them on the ground and also to work with other organisations in government to understand the policy settings that are required to help industry achieve that. It is a very big goal and it will be difficult to get there, but we are hopeful that the industry can get there. More than anything, it has been a really good thing for action on climate change in agriculture, particularly livestock. Research and development and a whole lot of other things have come out of that initiative.

The other thing that we have really focused on is continuously improving our sustainability framework. We have the Australian Beef Sustainability Framework, which is what we use to record progress against a whole range of sustainability indicators, with sustainability covering all things including economic resilience, climate change, environmental sustainability, people and community—the whole spectrum of sustainability in every sense. The other thing our producers are really interested in at the moment is biodiversity and how that can be better managed and measured on farms. That is something that everyone tries to be focused on all around the globe. Those are just a few things. I am looking forward to the discussion and hearing from others.

CHAIR: Thank you very much. One of the reasons this inquiry has been referred to our committee is that, clearly, many of us feel that there are not only threats but also opportunities opening up with climate change. One of the things we have been concerned about is whether the agricultural sector is ready or preparing for this. Even though we have just started this inquiry, the briefings and the chats we have already had have shown that a huge number of initiatives and programs are being prepared. Part of the question now for us is: is government aware of and promoting those? Are we making sure we are prepared in terms of changes to the sector in coming years? One of the things we will focus on is the recommendations to the government and the parliament about how they can better utilise what is already being done. We already heard about great initiatives yesterday and from what you have talked about today. That is a bit more about what we are looking to do, even at this early stage. We are impressed by the amount of work that has already gone into preparing for adaptation to climate change and climate variability. Sharon, you talked a bit about the biggest impact being on water availability; is that right?

Ms McIntosh: Yes, water availability, reliability and affordability.

CHAIR: One of the things that traditionally we have focused on as the solution to water availability and reliability is building more structures such as dams and reservoirs. My personal feeling is that in times of changing rainfall there is an element of risk in that. You are building this massive capital infrastructure but if the rain does not come you are left with a wall and a valley. There must be other means for dealing with water reliability and availability. What are the other means and programs that you are looking at to make sure our industry is resilient in times when water is unreliable or unavailable?

Ms McIntosh: At the Queensland Farmers' Federation we are strongly supportive of on-farm dams and on-farm dam storage including weirs. That has proven very successful for a lot of our farmers. That is an adaptation strategy that, I guess, they are not looking at as a climate change adaptation strategy themselves; however, it is something they are investing in on-farm themselves. I think a priority for our organisation is that we see some kind of assistance promoted and policy changed to allow or enable all farmers in the agricultural sector to have more on-farm dam storage. There is another issue with groundwater storage, but we do not have enough information to be able to substantiate that. I think more modelling in that area is definitely required. It is something that we have been advocating for and pushing for for quite some time.

It is not only about on-farm dam storage. A lot of efficiency programs are being developed right throughout Queensland, from the cotton fields out at St George right through to the Tablelands, where they do get sufficient water. There are a lot of efficiency programs going on. It is a matter of not doing it for climate change at this stage; it is a matter of having to adapt to the changes they are seeing on their farms and the costs not only with water but also with energy. Combined with water and energy,

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we are seeing a water-energy nexus playing out in agriculture where farmers are looking at renewable options, but we do not have that support yet to tie that into the water and irrigation on-farm. We are seeing a lot of proactive work being done in many farm areas throughout Queensland, but we could have that support and some kind of subsidy or co-allowance to encourage more of that. We do not need big dam infrastructure.

The other issue with dam infrastructure is that we are not taking into account the impacts of climate change on those dam structures, whether they are being left in drought conditions for long periods or having flood events that we have not seen for some time and then actually not standing up to the flood events that are occurring and will continue to occur in the future. I think there needs to be a bit more leeway put towards weirs and on-farm dam storage rather than putting dams in places where they are not being utilised because they are too far away from the farming region and there are no crops that are viable to support that level of cost in that dam.

CHAIR: I absolutely agree. We know in terms of dam structure that you need somewhere that has huge volume and is deep and narrow, instead of broad and flat, to stop evaporation. Certainly, the amount of money that is poured into that infrastructure is quite phenomenal. What you are saying is that a range of on-farm structures or functions probably would be a better investment of money in the long run?

Ms McIntosh: I think so. Another thing we are doing—and I am sure Scott is as well—is educating farmers a bit more on the changes to the environment and what crops are going to be best suited to where they are living and where they will be living in the next 10 to 20 years, because there is a change in crops happening. There is seasonal variation happening in crops already. I have seen that in the Tablelands myself. That has actually led to a complete other issue in the export market. It is not just a regional thing or a state issue; it is becoming a national issue because we are not acknowledging what is happening on the ground in some of these regional areas. It is not just a matter of whether or not the water is there. We need to look at the seasons and the crops we are growing, and we need to adapt those crops to those particular regions.

CHAIR: Do committee members want to chat to Sharon about that subject of water availability and reliability?

Mr McDONALD: A very large conversation can happen around that. Sharon, with regard to on-farm storage and so on, what sorts of processes or thoughts do you have about evaporation?

Ms McIntosh: I know there is some particular science and some research being developed. Here in Australia I am not sure where they are at, unfortunately. I know they are excessively costly, which is why we have proposed in one of our policy statements to look at groundwater storage, especially in the regions where there are high evaporation levels. We need that modelling to be done in order for that to be developed. That is an option to reduce that. I think the dam storage evaporation levels will always be an issue. Again, we have other options for that to reduce the application of water on-farm.

Mr McDONALD: I want to follow on from what Chris said earlier about starting this inquiry now. It is really important for us to understand how what is working can be replicated across industry to provide good outcomes. We are seeing industry-led improvements. I used the example yesterday—and I will share it for everyone today—that some of our good farmers are using tensiometers now. They are not just putting water on until it overflows; they are using tensiometers to get the right amount of water at the right depth. Then they are using trickle tape to grow out a crop of broccolini and then harvesting that. They are planting sorghum on the same ground, irrigating that, heading that and then mulching. They pull out the T-tape and mulch it. They are doing that for two reasons. One is to be water efficient. Also, they are seeing the mulch go back into the ground for nutrient value and also water-holding capacity. They are planting in areas so that they can keep the soil on farms. There is a lot of innovation happening within the industry. My concern is that many of those methods are not being replicated. Certainly it is an important thing. I am looking forward to hearing about your four areas and the action plans around those as well, which you talked about earlier, at some point in the next hour.

Ms McIntosh: To add to that, I would agree that that is not actually being undertaken enough in Queensland. My thought would be that (a) the education piece is not there and (b) we need the funds to do some of those on-farm efficiency programs. Compared to worldwide, we are actually behind. We are probably equivalent to the UK. Europe is well above and advanced in what they are doing on farm water efficiencies. I think it is a matter of them having to, whereas at this stage we have not been forced to do this. We are not vulnerable enough yet to put these in place. I think if we are proactive now and start looking at these options as we are vulnerable, rather than wait 10 years until

we are extremely vulnerable, that is definitely an action we need to partake in. From my research and visiting these countries, developing nations are already well ahead of us in some of these practices because they have had to be.

CHAIR: Robbie, I know that one of your big issues is the reliability and availability of water. Do you want to add anything at this stage?

Mr KATTER: I would thanks, Mr Chair. There are a couple of comments made about in-stream storage. I would be interested to hear a response from the contributors. We know about the off-stream storage. North Queensland is a completely different proposition to some of those established areas. We have higher temperatures and higher evaporation rates. On that Flinders black soil country, it is very questionable whether you would get much benefit out of water storage if you were just doing ring tanks along the Flinders. We are pushing for HIPCo at Hughenden, which is in-stream, to provide and initiate some initial development farming in the area and pioneering that out there. Would you agree that it is horses for courses a bit with that?

Ms McIntosh: I am from up your way—I am from Townsville—so I totally agree. My dad has a farm. The evaporation rates—once it hits this time of year, it can disappear quite quickly. I do think matching your crop to where you are situated will be a big indicator going into the future to try to match the evaporation levels. That is what some of the people around Townsville and outside near Charters Towers are starting to do, but it is a slow process.

Mr KATTER: I will throw another broad question out there to anyone who wants to answer it. There is quite a debate around the benefit of carbon sequestration on pastures. Let's talk about woody weeds or mulga. Mulga conditions have changed with how you treat mulga now and you have less grass. I know with 50 per cent canopy cover and prickly acacia, you have zero per cent Mitchell grass. Does anyone have commentary on that, on controlling not just woody weeds but gidgee mulga encroachment? Our ability to manage some of that has been highly curtailed, where I would argue that is affecting carbon sequestration through reduced pastures. Does anyone have a view on that?

CHAIR: We will come back to the issues of water and R and D, but Robbie has raised a question about that particular issue. Scott, Michael or Michelle, do you have anything to say on that?

Ms Randall: No. I will leave that one to the locals.

CHAIR: Michael or Scott?

Mr Wallace: Not in particular to Robbie's question, no.

CHAIR: Does anyone else want to contribute before we move to discussing R and D? I will go to the member for Burleigh and then either Scott, Michael or Michelle to talk about that issue of water availability and reliability.

Mr HART: You might be surprised to know that I have a slightly different view about dam infrastructure than some of my colleagues, but I wanted to delve into this onsite dam suggestion. Are people moving towards onsite dams for climate change reasons? If so, where is that information coming from specifically? Or is it more because no-one else is providing the water?

Ms McIntosh: Our experience at Queensland Farmers' Federation is that it is not a climate change adaptation strategy; it is a matter of having to, to ensure they have reliability of water because reliability, efficiency and affordability are the three main factors that are impacting all our growers. A lot of them are seeing that on-farm; they are doing it. I have had recent discussions with the department, which has reached out to me to ask me that very question, and I said, 'No, that it is a matter of having to, and we need more support for more farmers to be able to do that so they have that little bit of reliability on-farm.'

Mr HART: Does anyone else want to add to that?

Mr Wallace: For the last 20 or 30 years most growers have continued to purchase land to secure water, and that is an ongoing business decision, as they recognise that water (inaudible) for particular types of crops, but there are times where they have not been able to build on-farm storage, so they have to purchase water that is sitting in the ground under land.

Mr HART: Scott, are your members concerned about climate change and water at all?

Mr Wallace: Yes, definitely. Obviously availability goes up and down. Last year was pretty good, but we would look at the next three or four years where water availability is going to be an issue, and that will vary across the state. We see constraints across the state and in particular areas where, whilst there might be water there, the actual quality of water is not that good.

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Mr HART: Scott, where do you get your information about climate change that makes you nervous about the future?

Mr Wallace: We look at what growers are doing themselves, as well as—

Mr HART: You are a peak body. Where do you get your information about the effects of climate change moving forward, and how certain are you that the information you are getting is correct?

Mr Wallace: We look at things like what the Bureau of Meteorology is punching out from modelling data. We look at how that data reflects on certain crops for things like frost days, the number of cold days et cetera, and how that influences crop productivity and how that potentially changes over time. If you look at Stanthorpe as our apple-growing region, and the way that climate will change over time and the reduction in cold days, then certain varieties of apples potentially will not be able to be grown because of that loss of cold days.

Mr HART: That is all coming from the weather bureau, is it?

Mr Wallace: Most of that modelling comes from the weather bureau, yes.

Mr HART: Anybody else?

Ms McIntosh: I was going to add to the commentary on infrastructure. We are not averse to more dam infrastructure at all, but one thing I wanted to note, more so with regard to what Robbie was saying about dams, is that we basically want to see more scrutiny applied to new water infrastructure projects under the NWI for projects that incorporate projected growth in future years of water for the irrigated sector which maintains and increases economic viability for regional communities. We have seen issues in the past where projects have been developed and are not compliant. We would like to see more scrutiny placed on those before they go ahead and that they are in the regions that are required. That is a very big factor that is important to us.

CHAIR: I want to talk about applying research and development. One of the things we are seeing with this is that there is a lot of research out there and there are a lot of programs. Specifically to all our guests here, I would like to talk about examples of where you have research and development, you are developing products, you are developing services and they are going great, but how are we embedding those into the practices across the sector? Are we applying this great work we are doing evenly, or are there barriers to it being taken up by your member clients? I will start with Michael. I would like to hear a bit more about the R and D you have done in terms of whether there are any barriers to uptake within your sector.

Mr Beer: There are a number of barriers. There is a plethora of research information. I think the contact with growers at farm level has always been a continuing challenge. There have been good examples recently with the number of national programs around seasonal forecasting, particularly variability of climate. One project particularly, led by Meat & Livestock Australia, is developing those local farmer groups and those discussion forums to be able to interpret the information at a local level. What we call communities of practice, in extension language or in adoption language, is one way of getting people of similar interests around a particular topic and getting more adept at doing that, not just face to face but digitally as well. I think nothing beats the peer-to-peer learning environment. Going back to the previous discussion around dam storage and water efficiencies, the cotton industry, in terms of driving reduction of evaporation of water on farm dams, would be an industry that got around that quite significantly in the large growing areas and did that by sharing information between farmers. I think that is one element.

With regard to developing new, smarter tools—we have mentioned BoM—we have worked significantly with researchers in improving the accuracy of the bureau's forecast, particularly in terms of the weeks and months time frame. It has been less successful around the year-on-year forecasting, but I think we have learned from that that we need simpler, direct ways of communicating with farmers on the ground. Hence, BoM has changed some of the ways of delivering that information.

Other aspects include Climate Atlas, which is a program used effectively in the wine grape industry. It is about getting these models into industry related language, so particularly we are able to look at scenarios of either dry or wet in a water sense but also in the temperature fluctuations and be able to play out those scenarios to give people an idea of what the potential impacts are. Those are just a couple of comments.

Directly with AgriFutures, we run a national program on adopting technology, and one of the significant areas is around water sensors, both for water storages and for soil moisture. What we have learned from that exercise is that it is great to have the widgets, but you also have to have the training in that capacity building and reseller support to go with the adoption of those technologies.

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CHAIR: That last comment you made is something we are becoming aware of. It is great to have those widgets on the farm doing all this, but are we training people well enough to fully use those? If not, what can we do?

Mr Beer: To tie that off, I would say that there is still work to be done. I think there is a key gap which we see and have observed in a lot of the grant programs being rolled out—definitely one where we could connect growers with easy-to-access information remotely, as much as that support from their local providers and resellers.

CHAIR: On that issue of applying the R and D, Sharon, you have already indicated what you are doing and the barriers there are in your members taking up all these initiatives.

Ms McIntosh: We do have one program that has been quite successful—that is a combination of energy and water—and that was our Energy Savers program, where we facilitated energy reduction on-farm and reduced water application. That has saved our members tens, if not thousands, of dollars on-farm. We are continuing to do a couple of other projects at the moment. That has been a fantastic result with a group of farmers, and we would like to see more of that, but, again, we are restricted by funding to facilitate that for the rest of Queensland. We are doing projects with farmers with regard to Energy Savers. Another initiative that has been quite successful is the drought resilience program that the government has enacted. That has enabled a lot of farmers to facilitate different actions on-farm to keep the farms viable. We would like to see that continue.

With regard to the climate resilience program that Canegrowers are involved in, they are doing a lot of things like drought upgrades to their irrigation systems as a result of those funds, and they are also doing a lot of workshops and education encouraging farmers to be proactive, before events occur, by the risk that they need to come up with their own plans and how to manage. There is a lot of proactive development happening out there, not just establishing different piping networks or irrigation systems. There is a lot of business planning at the back end going on to help farmers plan ahead, knowing that we are going to have longer periods of drought and flooding. In that respect, the government assistance has not genuinely helped these farmers prepare, and again that alleviates a lot of funding then required from the government to help farmers get out of trouble, so to speak. We do not support full subsidies for farmers, but we do encourage them to prepare for the future through different initiatives that we can utilise now for education.

Getting back to water and climate, we have often suggested the utilisation of climate change modelling through a comparative analysis of climate change impacts on productivity using climate, water and crop yield models. This needs to flow onto direct policy that protects both the landholders' interests and the future of food security in Australia. We have not yet seen this undertaken, but we think this would be a genuine successful initiative for all of Queensland if we could enable farmers to have that ability, whether it is an application of sorts or something else. We think that would definitely be a boost on top of what has been undertaken with BoM.

Getting back to the question you asked before, we utilise a lot of the internet and telecommunications. We support and are pushing for more trading in under-utilised water. That is another issue we have limitations on. We are advocating strongly for being able to trade in different areas. That would alleviate water stress.

One thing we would like to see is better telecommunications infrastructure, because that is a limiting factor for a lot of these things to progress. We have been working continually with Telstra and it has become quite advanced in the last few years that I have been working in this space, but there is still a long way to go. There is more development needed in terms of infrastructure—whether it is infrastructure towers or something else—to enable progressive development with the internet and telecommunications to enable farmers to better predict when they put the crop in, if there is rain coming et cetera. If we can get that right, we are definitely ahead of the game.

Mr HART: Sharon, who is doing that modelling you talked about? Is anybody doing that modelling?

Ms McIntosh: I have been trying to—

Mr HART: Who should do it?

Ms McIntosh: I have been trying to facilitate funding for the last three years on this. We have approached government in different capacities. We have spoken with different ministers. We need that funding to be able to employ someone or have an external body to do that research. If we have that research, it will substantiate a lot of future funding and give viability for climate change adaptation policies to eventuate in state government.

Mr HART: Would you all need to do different modelling or could there be one set of modelling that works for everyone?

Ms McIntosh: Yes. The way I see it is that we have different crops put into a model and also the water and energy utilised. It is quite a complex process. I have spoken about it. We do have the funding capacity to be able to.

Mr HART: Have you done any research as to how much that modelling may cost?

Ms McIntosh: No. That would be a fantastic tool for farmers in Queensland to have if we had that ability. I have spoken to BoM in Canberra about it. They are doing great work. As Scott said, there are some fantastic tools that farmers can utilise, but they are not localised tools, unfortunately.

Mr HART: Has anybody else got any modelling that they know about that could be utilised there?

CHAIR: More so how that is being applied.

Mr Wallace: Melbourne university does a lot of modelling and they have some quite good resources. It is the application that falls down. We would recognise that across a number of agencies there are quite good models and tools available; however, they are not disseminated that well.

CHAIR: What are the barriers to disseminating it?

Mr Wallace: Growers quite happily go on the internet, but there is not the conduit—the bureau is putting things up on the website but then there is not that push through to the user. We see that multiple times. Whilst we have things like industry BMPs like Hort360 that cover off on some of that, it cannot do everything.

CHAIR: It is the push-through—that is, once the information is up there, how do you push that through in practice?

Mr Wallace: That is right. You are then at a point where extension and peer-to-peer type things have to kick in to try to assist growers to adapt what is coming out of a tool or model to be applied to their farm or region and their crops.

Ms McIntosh: It is a big gap we are missing to be able to bridge that adaptation strategy piece.

CHAIR: There are a lot of practical aspects. The work you are all doing is showing the practical ways you can do things. You talked about the internet of things and having the telecommunications infrastructure so that everything on your farms talks to each other. That is a practical application of that work. We are talking a bit of research and development. Michelle, did you want to add anything when it comes to the practical application of research and development?

Ms Randall: Yes. In terms of the last point, I am fairly sure that Meat & Livestock Australia has developed some fairly new and good tools for predicting climate. I am not sure what the barriers are to adoption or whether they are just too new, but they are available on their website.

I agree with everything that Michael and others have said on this subject about there needing to be people on the ground who are trusted by the farmers to get this information out. It needs to be tailored information for people's different businesses. Something I can add is that producers often report being very confused about which is the best way to go with some of the pull-through incentives that are out there, like an Emissions Reduction Fund project versus an incentive grant from landcare versus something like a biodiversity stewardship style market.

There is a lack of independent advice for producers who are being faced with people coming at them—carbon consultants with the deal of a lifetime—and they are not sure where to go with it all. It is a confusing space. Another confusion is that there are a lot of verification systems that are starting to be required in markets and other regulations coming at us, like the EU regulations that are in the pipeline, and what all that means for producers. That adds to the uncertainty of what they need to adopt first in terms of R and D that is coming out. Those are a few things to add.

Mr HART: Michelle, does your association give your members advice on these changing world standards and how they are going to affect them?

Ms Randall: Yes, that is something we try and do. We cannot give advice on commercial things, but we do try to share information and give producers the opportunity to discuss and set industry policy to advocate on different things like this, yes.

Mr HART: Do you see major issues coming in the next little while with trade between countries and sustainability or environmental issues that you will have to deal with?

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Ms Randall: We do not see a major trade issue, but there is certainly a need to be prepared for the fact that sustainability is a big thing on everybody's radar, particularly in the Northern Hemisphere. Things are often coming out of the EU that do not necessarily align with Australian production systems. Australia as a whole needs to be prepared to negotiate what sustainable agriculture means for Australian producers and what the verification system looks like that is reasonable and how we can agree on that between trade partners. That is something that is always on the radar.

CHAIR: I am going to go to the member for Ipswich West. We are still talking about the application of research and development. I know that, as a product of Gatton, you are interested in how that is applied. Have you got a question?

Mr MADDEN: As a graduate from UQ Gatton in horticulture and agriculture, everything we are discussing today is of great interest to me. I want to see our farmers and graziers prosper. I want to see agriculture in Australia continue to be a major exporter and an important part of our community—not just economically but also socially. Often farming and grazing is a family institution—generations and generations of family. This discussion is very interesting for me.

One of the things that has come up, in a discussion with previous presenters yesterday and with yourselves today, is the idea of the canary in the coalmine. I know that you, Scott, talked about some varieties of apples that in the future will not be able to be grown in Stanthorpe because there are not enough cold days. Sharon, you were talking about some areas. What is the canary in the coalmine at the moment with regard to horticulture and agriculture? I am asking this question because I can say to somebody, 'The temperature in Australia has increased 1.5 per cent since 1910,' but it does not quite catch it. I could tell them that we are now growing pinot noir in Tasmania because of climate change. I am sure this applies to grazing as well, but what are the canaries in the coalmine at the present time that you can give me an example of so I can go to my constituents and say, 'Climate change is something you should be interested in'?

Ms McIntosh: The canary in the coalmine I think is having that frank discussion with farmers that maybe in 10 years they will not be growing what they are growing now. It is going to change their yield. It is going to change their position. It will change their financial stability, potentially. That is a very hard discussion. I know with the water and energy committee at QFF that is a discussion I have been having, but in a very diplomatic sense, for the last 12 months or two years. I am slowly getting to the point where I am using a lot of underlying education pieces to get that message across, whether I am having BoM, hydrogen developers or Powerlink present. I have all of the different stakeholders and others that I deal with who are doing things now. You can see that a lot of corporations are planning ahead. In that respect, whether it is the water they are going to require in the future and compete with or something else, they are very heavy discussions that I do not think are completely out there just yet.

One thing that needs to be discussed is soil moisture loss and nutritional value in the soil into the future. That is another research and development process that is ongoing through the federal government. Finally, it is being prioritised because without that soil quality we are not going to have many farms to grow crops on. For us, the canary in the coalmine is to state that you will not be able to grow those particular crops in the future. There are farmers who are buying land to the south to be able to grow those crops that they are used to. I am aware that that is happening. It is probably not as newsworthy but it is happening.

Mr MADDEN: How about you, Scott?

Mr Wallace: As we will not see the apples that we buy now—Lockyer Valley continues to be the salad bowl of South-East Queensland in winter—that is yet to be modelled. I think what we have seen is crops grown within shorter time periods, which then squeezes resource capacity. We also see increasing overlap in market supply. If you take the Lockyer, they traditionally have had their own window of supply. Probably in the last 10 years we have seen an overlap between the Lockyer, Bundaberg and Victoria. That will impact growers' capacity to supply to market, get a sound return on investment et cetera. Those things are playing out more and more across a wider group of crops at the moment. We do not see that necessarily changing, so I is probably more of an economic impact as well as a resource impact. We see crops that traditionally might have been grown over a 12-week period get grown over a nine- to 10-week period. You still need the same resource input. Yes, there might be an opportunity to increase crop rotation for that crop or resource input to provide that extra rotation.

I just want to get back to some of the R and D. There has been a lot of work done over the last 15 years relating to dam seepage and evaporation. That work has been carried out by UniSQ out of the centre for ag industry, and they are redoing some of that work around dam evaporation at the Brisbane

moment. Dam evaporation is identified as a key investment through the Southern and Darling Downs Regional Water Assessment process. That is moving forward and (inaudible) interested in the debate around water resources, things like Bundamba as a recycling supplier to the western corridor and also the question mark around assessing water out of Wivenhoe.

CHAIR: Thanks for that. Michelle, on Jim's question and the canary in the coalmine story that the cattle industry is facing, is there one that you can share? Sorry, we cannot hear you. We might need to get back to you on that. We will come back to you in a moment.

Mr Beer: I have a couple of different responses. It is a really interesting question. I will quote two or three from our experiences. Emerging industries, as I mentioned, are part of our portfolio. At present we probably have a higher interest in alternative plant and animal pursuits than we have had for a number of years. Probably over 100 industries are being explored and we have developed development plans for about 20 of those. I would give the examples specifically around coffee and sesame varieties that we have had to go and source offshore and globally search for varieties that suit our environment. We have run a weeds biocontrol program for about seven years, and we have had to source bioagents from around the world—and a specific one for Queensland in water storages around cabomba—to reduce the impact of that weed in water storages and preserve the water in those storages. We have searched globally for bioagents we can use here effectively.

I have just come back from an international conference in California and there was quite a lot of discussion around biotech and bioengineering. There are a couple of specific examples where there is quite a heightened interest around looking at that as an option to address a number of climate impacts. The local growers in that particular state focused on alternative crop choice and changing varieties, particularly in their fresh food market, their planned industry market. Bioengineering was a pretty hot topic, and globally there is discussion around what that technology might be able to provide with options. The final one is probably around pest and diseases, and again there are examples specific to Queensland where we had the incursion of fall armyworm and where we have had new biosecurity hazards come as a result. We have almost had an annual turnover of new threats.

CHAIR: We might have a more in-depth discussion with you in the future, especially about the coffee example, because obviously you have a good story to tell.

Mr MADDEN: Michael, you talked about coffee and sesame seed. Are you saying there are pest threats to those crops, or are you saying we are not producing enough of those crops in Australia? I just want to get clarification on those issues that you raised. What angle are you coming from?

Mr Beer: We identified there is definitely an opportunity there to produce more domestically, but specifically we have had to go and search for genetics that are much better adapted to our industry and our production system. We have participated in things like the World Coffee Research program and got varieties out here to trial.

Mr MADDEN: Thanks for clarifying that. I just wanted to know what angle you were taking on that.

CHAIR: We will come back to Michelle in a moment. Robbie, you have a question about on-flow meters in gulf rivers.

Mr KATTER: There was a comment earlier in response to the member for Burleigh's question about the reliability of data and there were comments also made about scrutiny over water developments. I would probably argue the opposite: from my recent experience I think they are pretty heavily scrutinised. To get to the point, they will measure the viability of projects in the Flinders based on average annual flows when my understanding is there is no flow meter downstream. All of that floodwater you are looking at on the news is downstream of the nearest flow meter, so I do not know how you can possibly have accurate data on these rivers and reliability of data. Is that a concern of yours? Are you aware there are constraints, particularly in those gulf and cape regions? The data is flimsy at best, and we are already making judgement calls about whether it is sustainable or not.

CHAIR: I do not know if someone can speak to initiatives that can help Robbie out in this case.

Ms McIntosh: Yes, Robbie, I would have to agree with you, and that has been an issue with our farmers. These flow meters are definitely not always in the right locations and there is insufficient bureau metering in those locations that is able to help farmers, especially in some of the basin areas. We would like to see that really assessed, because it is not efficient enough for those regions. I would tend to agree with you on that.

CHAIR: Sharon, is that an example of how better infrastructure and a better application of that new technology could help put flow meters where Robbie says they should be?

Ms McIntosh: Yes, I think so. If we had adequate infrastructure placed in the regions where they need it then we would have farmers being able to make better decisions on-farm and be ready. Especially when there is a flood event occurring, they would be more ready and prepared. You can only be so prepared when there is a flood on your farm, but these are issues that regional communities in Australia do not have access to. The closer you are to cities it is not a problem, but right out in the remote areas of Queensland they are pretty much on their own because there is a lack of communication available and also inadequate metering et cetera put in incorrect locations. It is definitely a big issue for those remote areas.

CHAIR: That will be an interesting one for this committee, talking about the practical application of research and development—how you can get more consistent and affordable telco infrastructure out in those areas so Robbie can have those flow meters where he needs them. Is there anything more on that, Robbie? That is an interesting one we can follow up.

Mr HART: I have a couple of questions, but I thought Michelle was going to contribute to that.

CHAIR: You can clearly hear us, Michelle; can we hear you? No, we still cannot hear you. We might get you on the telephone and then we will come back to you.

Mr McDONALD: Thank you all again for being here. We heard yesterday—and we have fleshed a little bit of this out—about the unreliability of predictive modelling and agricultural communities responding to the changes. If you talk to my community or many others across Queensland, farmers will argue about climate change but they will not argue about climate variability. They have always dealt with droughts and floods. My question is: are the market responses to being productive given the circumstances, or are they relying on climate modelling? From what we heard yesterday, nobody can trust the climate modelling. I am not arguing about climate change; I am just saying that people are not making a decision to change their crops because they cannot trust the model. Is that your experience, or is it that people just want to be productive and try to make a buck?

Ms McIntosh: I think there is a mixture. We are seeing a mixture in our membership. The way I reframe it, if you want to take the words 'climate change', it is a changing climate and it is a faster process that is occurring than what they would have already experienced, and there is planning. I am not necessarily trying to put climate change in that aspect because we do see a lot of that negative rhetoric ourselves, but we are pressing on with it and ensuring there are things they need to look at and adapt to on-farm.

Mr HART: I can see from what you have said that everyone is doing best practice so we are getting set for what may come in the future, but what sort of information would you need to be proactive? I hate to use the example of not growing cherries in Stanthorpe or anything like that, but on that sort of level what confidence would you require to change something that dramatically?

Ms McIntosh: I personally use the internationally recognised climate modelling, because it is evidence-based science and it is what we know to be the best science now.

Mr HART: If the climate modelling said that you cannot plant tomatoes in Townsville anymore, it is not going to work in five years time, would that give you enough confidence to say, 'We will not grow tomatoes there anymore'?

Ms McIntosh: The climate modelling does not suggest that at all.

Mr HART: No, hypothetically. I am not suggesting that.

Ms McIntosh: I look at all of the variables and then go with that. For example, you are going to have more rain in Townsville and you may potentially still be able to grow tomatoes, but you may only be able to grow a certain breed of tomato because they might grow quicker, and obviously we know if it grows too quick then that distorts the—

Mr HART: What level of confidence in that modelling would you need? Who would you trust to give you that modelling to make that sort of dramatic decision?

Ms McIntosh: I trust the international modelling that is verified throughout the whole world and that is currently used to verify predictions in the future. Again, it is a prediction; it is not—

Mr HART: Would the IPCC, for instance, be enough?

Ms McIntosh: They actually utilise a world global model. However, I would not base it on predictions. Sorry, it is all prediction based and that is one thing that I talk to when I am speaking to our members. It is more about educating and knowing what is coming and what that means on-farm, whether that means they cannot continue to grow cane, for example, or they might have to adjust the way that they grow cane and it might have to be a different species. It is already happening around Townsville where they are adjusting to growing different species of cane due to the location they are in.

Mr HART: Is that historical information, on-ground sorts of changes, that are forcing that?

Ms McIntosh: It is happening now in the Burdekin.

Mr HART: Not predictions, but actually what is happening now?

Ms McIntosh: Yes, that is happening now. I am from Townsville. I have spent a lot of time up there and I do go and visit the farms. It is happening in the Burdekin already and it is happening in the Tablelands with the different pawpaw species. I could not say with surety, 'You cannot grow cane there in five years because of XYZ. You need to look at alternative crops that suit your locations, whether it is grapes et cetera. You will have to use that international climate modelling because that is the best evidence-based science that we have currently to utilise.' I would never say to anyone 'you cannot grow XYZ', but you need to start looking at different crops due to this particular climate. As I mentioned earlier, there are already farmers buying land and moving elsewhere to enable them to continue in that aspect, but I would never be able to say 'you cannot grow that there', because there is no certainty to say you cannot grow that there. You might just be able to grow a different species. I do not think anyone would be able to say that at all.

Mr HART: Is everybody else seeing the same sort of thing?

Mr Wallace: CSIRO, either in Brisbane or down south, have actually been doing some quite good work over the years around different types of models that, whilst they might not be necessarily specific to climate, have a climate impact, so pest pressure in particular. If we are going to model pest pressure, obviously a climate shift will potentially influence the type of pest that growers on-farm deal with and that has a flow-on effect. There are a range of models and tools available that, used differently and accessed differently, will give a better decision-making process for growers moving forward on what types of crops they might grow in particular types of regions.

CHAIR: Michael touched on this and it is very interesting. If you are dealing with your growers it is that issue of trust. It is one thing to say, 'This is what the IPCC says,' but if you are saying, 'This is what the QFF, Growcom, Cattle Australia and AgriFutures are saying—this is what you may be seeing locally or this is what you need to do,' is that a better way to deliver those messages or to introduce those changes on that issue of trust? Essentially, are your organisations, or an extension officer from the department, the best vehicles of trust to deliver these changes?

Ms McIntosh: I think so—definitely. It is a combination of things. We do not just use one thing. It is exactly what Scott said. It is a combination of models but based on the international standards for climate modelling that a shift in one degree of temperature does change the range of pest species, and we are already seeing it in the top end of Australia. Those things are very real and we cannot ignore that is happening in cane. They are seeing increased biosecurity threats and that is as a result of shifting climate, and also increased cyclones are bringing pests on board. As Scott said, we are seeing it more frequently and it is becoming an issue. I think it is just having that variable, to be able to state 'this is happening', 'this is a substantial factor', 'it is happening in other parts of the world as well where there are latitude and longitudinal changes because they may not be seeing the cooler temperatures they had in the past and it is allowing pest species to navigate those regions where they did not have to utilise any pesticides before'. That is becoming an issue here in Australia as well. We are having to adapt to those changes, whether they are increased pesticides on-farm, and combat those biosecurity threats.

CHAIR: Michelle, I think we have you now. Let us see if we can hear you.

Ms Randall: For us, the focus has mainly been on emissions reduction and having a goal to be carbon neutral by 2030 mainly because as a nation we are at 70 per cent (inaudible). We are looking at ensuring we are able to respond to international market demands, and we are well ahead of a lot of other countries in terms of looking at a carbon-neutral goal and finding ways to get there. I do know that Queensland and other northern producers are a bit more apprehensive about that goal because a lot of the measures, such as feed supplements like asparagopsis and other things like planting legumes, are less available to the northern industry because they are on much more extensive properties, but there are other options. Most of the options for adapting and reducing emissions are to do with things like production efficiencies in the north, so ensuring the cattle genetics there are most efficient so we do not have cattle walking around on pastures that are not producing anything.

Other things that we are looking at are breeding genetics generally to animals that are more efficient and produce less methane and vegetation management—things like leucaena, which is something that can be grown in the north. All these sorts of things that are designed to reduce emissions make the industry more resilient to more drought and flooding events. There is some

apprehension about how we are going to manage to reduce our emissions, and the community will keep looking at blue-sky thinking and R and D options that are going to be applicable to the very extensive properties that we have in Queensland and the Northern Territory as well. Rather than looking at it as something that is looming and a big issue, it is also an opportunity for Australia to lead the way, I guess, in terms of R and D and adaptation measures and reducing emissions, so there is a positive as well.

CHAIR: Back to what Jim Madden was talking about, for example, there may be a certain species of cattle that are becoming more suited to different areas as climate changes, and we are using this to communicate to our constituents. Is there a specific example of where different species are suited to different areas in the future?

Ms Randall: Work is going to be geared towards finding the most efficient cattle for the area and the climate they are in.

Mr McDONALD: Following on from what I was talking about before, from my experience, just looking at horticulture, farmers are not making decisions around climate modelling, but if a seed company comes along and says, 'Here are some new varieties that will perform better in this area' or for longer or what have you, they are taking them up or doing a trial of that and then that works and then they put them in place. My experience is that nobody is making a decision based on climate modelling. It is not because they are being ignorant; it is about their process or whether the farmer next door or somebody up the road has had a good crop with a new variety. They are self-determining their success, if you like. Do you have any thoughts about that? We will be asking for submissions to this inquiry at a point in time but for now we are learning things, and the thing we are learning is that we need to replicate. It is going to be challenging in my community to say, 'You all must read the climate modelling because that is what is going to work.' What are the systems we can put in place that will make us adaptive to climate change?

Mr Wallace: It is a market-driven process. Yes, growers do not make decisions based on it being one degree hotter in five years time. We growers grow nationally to supply a supermarket 12 months of the year or what they are contracted to supply. Growers change varieties based on the customer not being interested in the variety on the supermarket shelf or finding it difficult to maintain production of that variety, whether it is a pest pressure or a disease pressure. Australia does not produce its own seed bank. Most seed banks come from the US mainly and the UK. Our capacity to produce our own food is based on what we can get imported as seed. That creates an issue, obviously. We see that shift in variety mainly because of a consumer want, and growers will continue to do that. Yes, big seed companies say, 'This is our new variety and it is better at something'—usually it has a better colour, a better shelf life, a bit less pest density or that sort of thing. It is not necessarily, 'Are things going to grow in those five weeks that it is 40 degrees or above?'

CHAIR: Does anyone want to add to that?

Mr Beer: From the perspective of accuracy of models, we have employed some work around scenario planning. I would use an example where farmers might be looking at a limited shift, so a reasonably mild shifting in climate scenario or a strong shift, and having strategies that could fit in that range of outcomes. I think for me, if we looked at Queensland and some recent work we did with biosecurity systems, it would be around an extremely wet scenario in the north, a stronger increase in frequency and severity of extreme weather events and redistribution of pests and disease—they were the things that really came out—and having strategies at farm level that you can switch on to do that.

Ms McIntosh: I would like to reiterate what Michael just said. That is something we have been working on and it is quite important. Again, I go back to cane. They have actually seen an increase in pests in the northern part of Australia which is decimating some of the crops from the on-flow storm seasons et cetera and cyclones from Papua New Guinea. It is definitely a priority to look at biosecurity threats.

Just getting back to the seed development, we would like to see seed development in Australia and also fertiliser, because it is impacting our farmers' costs and economic viability. We are very strongly supportive of renewing domestic production capacity of farm inputs such as fertiliser, which goes back to the transition to renewables, which obviously attribute to cost-effective incentives for fertilised production if a more stable and affordable energy supply network is achieved. The same support goes for seed production to eliminate some of those factors that are happening which Michael mentioned earlier.

CHAIR: Excellent. One of the thoughts I have so far is that we would probably like to talk to you more in detail, perhaps one on one with each of you or your organisations, as we develop this because you all have so much information. We will be in contact with you. That is something we will

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be doing in the future because, for example, Sharon, you have talked about a number of different programs that you have. I thought we might just wrap up but ask each of you if there are any final statements or any final messages that you wanted to deliver to our committee on this particular inquiry. Sharon, we will start with you again.

Ms McIntosh: Just to summarise—again, there are various factors that we have not discussed today—we would appreciate the opportunity to put a submission in so we can identify the adaptation strategies and the programs that are being undertaken at QFF that some of our members are fully utilising and also strategies to put some of those ‘canary in the coalmine’ strategies in place because they are very important, as are the communication issues that we are seeing everywhere, right down to the Murray-Darling Basin issues. Just to summarise, parity pricing, fertiliser costs and supply, domestic food prices, fuel, affordable energy, soil health, water availability and reliability, biosecurity, unseasonal climatic events and increased frequency of natural disasters, change in crops, workforce shortages and global supply shortages on the supply chain are all going to impact production availability and supply of food. We need to prioritise how we facilitate food and water security into the future. We appreciate being able to participate in this discussion and the inquiry and hope to discuss these issues further.

CHAIR: We shall. Scott, do you have any final message for us today before we talk more in depth in the future?

Mr Wallace: Yes. I would like to thank you for the opportunity for today and would welcome ongoing input into the process. Based on what Sharon has talked about, we would support those things as well. We would like to put forward that there are some barriers but there are some significant opportunities for horticulture in particular, so we would like to put them forward given the opportunity.

CHAIR: Thank you very much. Michelle, what about you? Is there any final message that you want to give to us today before we talk to you in depth?

Ms Randall: We just wanted to reiterate what Scott said in that there is a significant opportunity available to producers and we do not want to miss out on that but definitely appreciate that there is a need for adaptation to be aware of what is coming for producers, and preparedness for drought, flood and other natural disasters unfortunately could be something that is important. I guess I am coming from a national perspective and it would be important to me to go back to our members such as AgForce and other Queensland producers to get some more detail for you. It is also important to note that alignment with other national strategies and industry strategies is also important. Thank you for the opportunity today and sorry about the tech issues.

CHAIR: You are right. Thank you, Michelle. Michael, over to you. Are there any final messages for today before we talk more in depth?

Mr Beer: Just a brief one. Thanks again for the opportunity, and we are certainly very much open to further conversations to address the specific needs of the committee. One of the things we did not go into detail about but I just leave with the committee to consider is the people and capacity-building side of climate resilience and adaptation. I think that is a really critical one and one that I would really enjoy having further conversations about. We are certainly looking at workforce planning more generally for the ag sector at a national level, and those two things I think will be pretty critical for how we do adapt.

CHAIR: Great. Thank you very much. Just before we conclude, I thought I should mention that many of you will get an email from us. A private member’s bill was introduced last week which deals with the issue of climate. That will be a separate matter dealt with by this committee. We will have a six-month period to process and assess that private member’s bill. That is a different process from this inquiry, so I thought we might just explain that before we get any further questions on that. Thank you very much. That concludes this roundtable discussion. Thank you to everyone who has participated today—Michelle, Michael, Scott and Sharon. Thank you all for being a part of this. I look forward to having those submissions from you in the future and perhaps some further discussions. I declare this roundtable discussion for the committee’s inquiry into the impact of climate change on Queensland agricultural production closed.

The committee adjourned at 12.06 pm.