# UN Food Systems Summit National Dialogues

Webinar 5: Agricultural innovation – building better food systems

2.00pm to 3.30pm Australian Eastern Standard Time

Wednesday 13 July 2021

## Transcript

**David Pembroke:**

Hello, and welcome everyone to the fifth and final of the Department of Agriculture Water and the Environment's, National Food Systems Summit dialogues. Today's dialogue is titled, "Better food systems through agricultural innovation." My name's David Pembroke, and I will be your host for today's discussion. Before we begin today, we acknowledge the traditional custodians of the land on which we are meeting today, the Ngunnawal people, and acknowledge and respect their continuing culture and the contribution they make to the life of this city and region.

**David Pembroke:**

We extend that recognition to the traditional custodians of other lands on which our discussion participants are gathered today and indeed to all Aboriginal and Torres Strait Islander peoples who are attending today's event. This year, as we enter the decade of action for the UN's 2030 Agenda, the Secretary General has called a Food Systems Summit to highlight the critical role that agriculture and food systems play in achieving a sustainable future and their importance in making progress towards each of the 17 UN Sustainable Development Goals.

**David Pembroke:**

Over the course of 2021 in the lead up to the Summit, all around the world, people have been encouraged to come together and participate in a series of dialogues to discuss how we can make our food systems more sustainable, healthier, and more resilient. The Department of Agriculture, Water and the Environment is hosting an open platform for Australian stakeholders to share their experiences, their ideas, opportunities, and indeed solutions on a variety of issues and challenges related to our food systems. Joining me to explain about Australia's approach to these National Dialogues is Fleur Downard, who is Australia's National Dialogue convener, and a director with the Department of Agriculture, Water and the Environment. Welcome back Fleur.

**Fleur Downard:**

Thank you, David. Welcome everyone to today's webinar. The Australian government is providing a platform for you to raise your views and think about solutions for issues facing our food systems. The aim is for these discussions to be open, transparent, and represent your views. However, it is important to note the views expressed today are independent to those of the Australian government. We will be summarising feedback from these webinars directly into the UN Food Systems Summit processes.

**Fleur Downard:**

This series of Food Systems Summit webinars is designed to start a conversation. If, after participating in this session today, you find that you have more to say and contribute, that's great. All stakeholders will be invited to upload their thoughts, ideas, and potential solutions on the issues raised throughout this series of webinars using the department’s "Have Your Say" page for the Food Systems Summit. I'll talk more about this at the end of today's webinar.

**David Pembroke:**

Thank you, Fleur. In today's discussion, "Better Food Systems Through Agricultural Innovation," we'll explore the role of innovation in building better food systems and also some relevant best practice examples of Australian policy approaches. The discussion is an opportunity to highlight the many ways that Australian farmers, businesses and researchers are already using innovation to make the agricultural sector more productive and more sustainable. Now, today we'll hear from a diverse group of presenters and the discussion with your involvement will help to identify areas for further work and future collaboration.

**David Pembroke:**

The order of proceedings for today's discussion begins with an introduction and welcome to you all from Minister David Littleproud, who is the Minister for Agriculture and Northern Australia. We'll then hear from Christine Mulhearn the Assistant Secretary of the Innovation and Consumers Branch at the Department of Agriculture, Water and the Environment before we have a series of three short presentations from Dr Lilly Lim-Camacho, a research scientist at the CSIRO, Mr Ian Olmstead, the program manager at Dairy Australia and Dr Michael Crawford, who is the chief executive officer at the Soil CRC.

**David Pembroke:**

Following those presentations, the panellists will start answering your questions. So please, if at any time today during proceedings you do have a question, please type it into the Q&A box at the bottom of your screen and throughout today's discussion, we will do our best or indeed our panellists will do their best to answer those questions. This is the fifth in our Food Systems Summit dialogues. I have to say that it has been the insightful questions from the audience that have really generated some high-quality discussion during those first webinars that we've had so far. Please, I would encourage you and I know I speak on the behalf of the department, that they are very keen to get as many questions as possible from you today for our panellists.

**David Pembroke:**

During that Q&A session, I'll also call upon Dr Melony Sellars, who's the chief executive officer and managing director at Genics and Tanya Kilminster, who works for the Grower Group Alliance-led South West Western Australia Drought Resilience and Innovation Hub. Again, if you have any questions during those presentations, please pop them in the box and we will do what we can to answer those questions. Let's get started with a message from the Hon. David Littleproud, Minister for Agriculture and Northern Australia.

**Minister David Littleproud:**

Welcome to the final webinar of the UN's National Food Systems Summit. This is an important webinar around the challenges that we face globally, keeping production systems sustainable, and adapting to the changing climate and the challenges that we face not only here in Australia, but around the world. In Australia, we've faced up to those challenges probably more than anyone in the last 24 months, whether that be from bushfires, cyclones, floods or the prolonged drought, but it's been innovation and technology that has driven the production here in Australia.

**Minister David Littleproud:**

Despite those headwinds, despite those challenges, we've taken agriculture in the last 12 months from an industry we thought was only $60 billion to $66 billion because we have challenged ourselves to adopt the new technology, the new science, to equip our farmers with the tools of the 21st century to grow Australian agriculture even further. What the opportunity is that you'll hear about today is collaborating. Collaborating as a global community and coming together, facing up to those challenges and making sure that we evolve with the changing climate and making sure that those tools are provided to farmers right around the world, to continue to make sure that we have as secure food production system as we possibly can, and to grow and to build on that.

**Minister David Littleproud:**

This is the opportunity that lays ahead of us. As a proud Australian, I think here in the southern lands, we are doing our heavy lifting to make sure we not only continue to take our agricultural production systems to a hundred-billion-dollar industry plus, but also to share our knowledge, our experience, with the rest of the world to make sure that we as a global community can come together and have secure food supply systems for everyone that lives on this planet. Have a great webinar.

**David Pembroke:**

Well, thank you indeed, Minister Littleproud. Again, there's encouragement to get involved today with your questions and answers. As I say, I speak on behalf of the department when I encourage you all to put as many questions as you possibly can as we go forward through today's webinar because we do want to hear your opinions, your views. Indeed, we can accept those challenges that the minister has just laid before us. Now, Christine Mulhearn is the Assistant Secretary of the Innovation and Consumers Branch at the Department of Agriculture, Water and the Environment and she has joined me at the table.

**David Pembroke:**

Christine is responsible for delivering Minister Littleproud's ambitious agenda to stimulate Australia's agriculture innovation system, so the agriculture sector can meet the industry's target for a sector with a value of $100 billion by 2030. Welcome Christine.

**Christine Mulhearn:**

Thanks for having me, David. I'm excited to be here.

**David Pembroke:**

Fantastic. Well, let's go.

**Christine Mulhearn:**

I want to talk a little about what innovation is. Innovation is about a change in what we do and how we do it. It's about a mindset that we have and how we think about what we produce here in Australia. Minister Littleproud's entirely right. Here in Australia, we have amazing capacity to respond and react when something happens. We're wonderful adopters. When there's a crisis, we're available. We adapt, we change, and we innovate, and that's absolutely the case in agriculture, but what happens if we don't need to adapt and change? What happens if that burning platform and that crisis isn't there? How do we still be innovative?

**Christine Mulhearn:**

I want to talk a little bit about an organisation in South Australia in the Pinnaroo. They grow red lentils. Beautiful, amazing red lentils. They had a weather event, which meant their lentils were chipped so they couldn't sell them for the price they wanted to for human consumption. They can only sell it for animal feed. When they worked through their costs and their processes, they decided that really wasn't worth it and so they need to look at different ways of doing it. That's a crisis. This farm has innovated and changed, and they've now actually built their own little mill on site and they now mill red lentil flour.

**Christine Mulhearn:**

Instead of selling their lentils for animal feed for a few cents on the tonne, they now sell their red lentil flour for $11 a kilo, plus postage. Australia Post isn't cheap! That's an innovation for their business. They've now actually moved to a point in 12 to 18 months where they now only grow lentils for flour. They've got commercial ranges where they sell it. By the time they sell it in local bakeries, they sell it domestically and they're looking to move into the major supermarkets here in Australia and eventually overseas because red lentils are an amazing product and they're high in protein. They're about 48% protein. It really is a super food.

**Christine Mulhearn:**

That business has done so well. They've actually had to change their name. They've had to get other growers on board in the Pinnaroo to actually get more lentils because their farm can't even hold that capacity. It's a fabulous story about innovation and a wonderful thing. That's kind of the little bit of negativity in that story is they had to have a crisis. They had to have this point where their lentils weren't saleable to think about, what can we do? How can we make our farm more viable? How can we contribute to that Food Systems Summit? The idea is about... When we talk about innovation, we talk about a change of mindset.

**Christine Mulhearn:**

Even when you're not having that need to change, how do you have that mindset to change? How do you be different? How do you look for the next product that's going to make a difference? How do you sell it to the world, and what about your product? Is it thing that's worked for you, your farm, but also for the consumer that you're selling it to the end? The question is, well, how do we do this? We do it together. Government, producers, the supply chain, and even the consumer at the end. What do we do all together to create this innovation environment?

**Christine Mulhearn:**

There are a few things that the government is looking at. The agricultural innovation agenda has pillars of reform. Leadership, it's important to show leadership. Finding an investment, innovation practices, and you'll hear some really amazing speakers today who are at that forefront of innovation who are really trying to drive that cultural change. We'll talk about platforms and strengthening our regions. What are the things that we can do that are different that make it move forward? The government's also established along with the research and development corporations, Agricultural Innovation Australia.

**Christine Mulhearn:**

Now Agricultural Innovation Australia is about tackling those big cross-sectoral challenges faced by agriculture, fisheries and forestry. There are things that no matter what you produce, whether you grow wool, whether you produce red lentils, whether you're a fisher and you take abalone out of the Bass Strait. There are things such as salinity, water, soils, food and fibre that make a massive difference to your business. AIA is about looking at some of those big picture challenges and putting money and joined up research together to say, well, how are we going to solve this as a community together? There's also growAG. I'm really proud of growAG.

**Christine Mulhearn:**

I think it's an amazing initiative and I encourage everyone who's online at the moment, to just go and take five seconds while I'm talking to go and click on growAG and have a look. growAG is a place where all the levy funded projects from those RDCs appear together. You can actually go in and say, what's happening now? What do I go and invest in? It's a way of looking at some projects and saying, well, how can we adopt them? How do we move them from just research into being something that's enabled for people? What investment do we need? That's not just always money. Investment can be about finding the right partner with the right skills. How do we sell Australian agriculture to the world?

**Christine Mulhearn:**

We have a wonderful clean green reputation, and we produce amazing goods, so how do we actually build on that brand and say, you know what, I'm not just going to sell my red lentils, I'm actually going to sell how I grow them. The technology behind it, the systems, and the know how about how we do things as part of that market. You'll hear from Tanya a bit later, but the drought resilient adoption and innovation hubs are really important. These are key players in the innovation system, and I encourage everyone to get in touch with your local hub and talk to them. It's about an opportunity to accelerate broader innovation. It's an on the ground resource where you can go and say, hey, we want to try this, or we want to do something else.

**Christine Mulhearn:**

We don't know how to solve this problem, or we'd like to show people what to do. That's a way to do it. It's a way to bring people together and actually do it in a physical, practical way in your local area. In terms of innovation, I just want to finish with this real conversation about “it's something we do together”. It's not government's responsibility, it's not a producer's responsibility, it's not a third party's responsibility, it's something we'll all take different steps. The journey we all might take on innovation is incredibly different and that's okay too. It's about ensuring that we've all got the right mindset to go forward and deliver.

**David Pembroke:**

Christine, thank you very much and the call-out very much there to the audience today to think about some of those ideas. Indeed, if you do have questions from Christine's presentation, please pop them in the Q&A box and we'll get to them through today's discussion. Thank you very much, Christine, for that presentation. To our first panellist for today, Dr Lilly Lim-Camacho from the CSIRO. Lilly Lim-Camacho leads a team of trans-disciplinary scientists, consultants, and engineers across the CSIRO to develop sustainability solutions for the private sector. She integrates a wide range of disciplines to tackle the challenges and opportunities presented by sustainability of our food systems. Welcome to you, Lilly.

**Lilly Lim-Camacho:**

Good afternoon, everyone. Thanks for the opportunity for being here. I'd like to talk to you about value chains and sustainability, and really welcome the questions that come through, either through chat or directly being asked of us. As mentioned earlier, it's a dialogue and so I'm hoping I'll only give you a few snippets of insight to just jog, get some questions running in your head and then we get talking after. Our role in value chains is a critical system for innovation, particularly for agriculture. You've heard Christine earlier talking about how the red lentils moved from simple production to actually processing.

**Lilly Lim-Camacho:**

Without a knowledge of what you need further down the chain, you won't get those steps on board, but value chains are so much more than just adding value to a product. They're actually a system that you could really harnessed innovate. I would challenge us to think about it. How would you innovate it through the value chain to reach our goal toward sustainability or progress through sustainability and do that in a responsible manner? What is a sustainable value chain? These are four aspects that I consider when we think of sustainable value chains. I want to see us obviously being competitive.

**Lilly Lim-Camacho:**

Let's reach that a hundred-billion-dollar goal for agriculture through our value chains but do so in a way that has low impact on the environment, society, provides equitable conditions for employment and also benefit for communities and also keeps us resilient. It's really important that when we think of what a sustainable value chain is. It's multifaceted. It's not a simple goal. It's not a singular goal and that there are many ways we could achieve this if we come together. That's what value chains are for. They're systems of stakeholders that come together, not just businesses working together and transacting. In my work in CSIRO HandPrint, we would like to achieve this by looking at a few things.

**Lilly Lim-Camacho:**

What we'd like to see is that we are able to enhance our understanding of what sustainability is and what it requires. We want to make sure that actions actually lead to integrated environmental outcomes. Not singular environmental outcomes but acknowledging that there are so many benefits to doing a simple thing. It's not just carbon that we're looking at. We're looking at biodiversity, we're looking at impact on social, on communities and in society. Lastly, we want more people benefiting from carbon sequestration activities, not just it being another industry where it could be monopolised or dominated by certain players, but actually having that equitable output and benefit that we want to see.

**Lilly Lim-Camacho:**

I see carbon as an industry, a new industry that Australia is moving forward to, and actually globally as well. I think we have the best chance of getting it up and running if we look at it from a responsible innovation position. What are the challenges in thinking through this? We know that the quest for sustainability across the value chain requires a lot of integration, and that requires a lot of trust as well. Working with multiple players in the value chain is not a simple feat. You've got to learn how to work with these people, learn to trust them and share information. That's important.

**Lilly Lim-Camacho:**

The integrity and verifiability of the systems that you use to get that going is going to be critical because otherwise your baselines are all off, your goals are all off and we don't know how we're progressing in our journey towards sustainability. Lastly, as we know, in agriculture equity issues abound. We have power dynamics. We have to be mindful of the resource constraints, there are consumer drivers, there are multi-sectoral balances you have to do where you've got, for example, mining and water and agriculture all in the same place and you have to fight over resources. That's all there.

**Lilly Lim-Camacho:**

That's natural, that happens anywhere around the world, but we need to be mindful that in the quest for sustainability, agriculture's not the only player. We have to be working together to get things on board, and that's a real challenge. What are we striving for? In my job, what we want to get to through science is verifiable and credible systems. There's a lot of flag-waving out there and sustainability is a very messy space. I don't want people to stop moving towards sustainability just because it's too confusing. What we want to do is enhance credibility out there.

**Lilly Lim-Camacho:**

We want impact, focus, metrics and frameworks. Not just any simple metric that you want to put out there or a number or a framework, but ones that actually point to an outcome on the ground. The ones that actually move us forward and give us interaction. With that, we want a range of relevant and responsible actions as well. Actions that take into account not just the impact on a business or on a farm, but to the next-door neighbour and the next community and the next business out there as well, and so on and so forth. That means we've got to work together and look at sustainability and the science and technology and innovations in a way that is responsible. I'm hoping that this will jog some questions in your head and I'm looking forward to hearing your thoughts on it. Thank you.

**David Pembroke:**

Thanks a lot, Lilly. Dr. Lilly Lim-Camacho there from the CSIRO. Again, Christine Mulhern said it and Lilly has just said it again. It's collaboration. Innovation is really about collaboration. So indeed, looking forward to those questions and I'm pleased to say that there are questions already coming in. Thank you very much to the audience for those questions. Please again, if you do have a question through any of the presentations today, make sure you do use the Q&A function there at the bottom of your screen and we'll get to those questions with our panellists when we come to the Q&A section. Thank you, Lilly.

**David Pembroke:**

Now, our next presenter is Ian Olmstead, who is the program manager for Manufacturing, Innovation and Sustainability at Dairy Australia. Ian is responsible for collaboration and the transfer of technology across the dairy manufacturing sector. Welcome to you, Ian.

**Ian Olmstead:**

Great. Thanks David. Thanks to all the organisers for the opportunity to present at the Summit. It's great to be part of such an interesting and open conversation on this topic. What I'd like to speak about today is the role of collaborative networks in driving innovation. I think as Christine has already touched on today, there's a lot of things that come to mind when we think of innovation in agriculture. I imagine that this picture is different for everyone that approaches it. For the Australian dairy industry, innovation towards delivering the UN goals of a more sustainable, productive, and resilient agriculture and food system is a continuous and active process, which is occurring every day across our supply chain.

**Ian Olmstead:**

We're constantly improving on the pastures we grow, the animals we breed, our milking systems and logistics and the products we produce. We're continuously striving to reduce resource use and waste production. Not just because it's good for business, but because we acknowledge our role in delivering nutritious food to a sustainable world. There are a lot of factors that drive innovation and the reasons that some ideas succeed while others fail are complex and varied. What I'd like to touch on quickly today, however, is just the role that industry service bodies like Dairy Australia can play in that innovation ecosystem and the importance of the collaborative networks that we're able to foster.

**Ian Olmstead:**

Networks that come about as a result of our unique positioning within the Australian agricultural sector, and which can play an important role in accelerating national progress against the UN sustainable development goals. For those of you that aren't too familiar with Dairy Australia, we're one of 15 rural research and development corporations, the RDCs that operate across agriculture, fisheries and forestry industries.

**Ian Olmstead:**

We're industry and government funded service bodies, tasked with delivering tangible and practical improvements for our industries in terms of productivity, profitability, sustainability in the community.

**Ian Olmstead:**

The nature of food and fibre production in Australia is quite diverse in nature, meaning that not all innovation activities will land the same in each of the sectors, so RDCs are a way to get around this. Because of our sector specific focus, RDCs are able to concentrate on particular aspects of our value chain and in doing so, provide much more meaningful and targeted support.

**Ian Olmstead:**

In working to support innovation sustainability, within our sectors we naturally develop significant personal networks, and long-standing trusted relationships with the stakeholders that we're working with. The farmers and manufacturers that we engage with understand that we're on their side and part of the team, so you can deliver benefits to them and the industry.

**Ian Olmstead:**

So, it's an incredibly privileged position and our ability to develop and maintain trust as a supporter of the industry is a significant catalyst for innovation.

**Ian Olmstead:**

And so, because of its position, Dairy Australia naturally develops strong networks with industry stakeholders and these connections give us unique access to industry insights regarding the barriers and opportunities for innovation. Insights which others coming from the outside, even local government and national research bodies would often have a hard time getting. And this allows us really to target our services and support.

**Ian Olmstead:**

By establishing these networks with a particular focus, we can develop coordinated industry projects to tackle specific issues and gain access to tailored funding. We can support screening assessment and relevant technologies, and by socialising some of the high-level outcomes, provide rapid feedback to the market as to what works and what doesn't. All this supports the industry to improve the way in which connects with and understands the value of innovations entering the market. And it helps to accelerate and refine those technologies, tailoring them to our needs and ultimately through enhancing innovation leads to more efficient and sustainable food systems.

**Ian Olmstead:**

In the case of my program of work, as we sort of touched on earlier, one of the collaborative networks that we've established is the Dairy Manufacturers Sustainability Council, which since 1995 has brought together all of the major dairy manufacturers to work together to track and improve performance against environmental sustainability targets. We're actively working on coordinated projects to tackle areas like sustainable packaging, food loss and waste, ethical sourcing, greenhouse gas reduction, and on-farm silage plastics.

**Ian Olmstead:**

Because of the critical mass of the industry involved, we're also able to attract significant external funding to support our efforts and signal areas of focus to the market via targets to also help attract high quality service offerings to support us.

**Ian Olmstead:**

So really, just want to leave everyone with the idea that there's incredible power in the ability to develop trust in collaborative networks and to speak with an industry voice. Not only does it drive focused innovation, but it also allows us to continue to more effectively build sustainable, productive, and resilient agriculture and food systems. Thank you.

**David Pembroke:**

Thank you very much, Ian Olmstead from Dairy Australia. And really again, there's the theme again for collaboration and thinking imaginatively about exactly how you can and who you will work with in order to drive innovation in your space. Going back to Christine's presentation, there is the story she told about crisis driving innovation, but innovation being driven, nonetheless.

**David Pembroke:**

I wonder, as we go through the presentations today, if each of you there at home, why don't you try to write down one or two people who you may not have thought of who you might be able to engage with, who you could reach out to as part of this collaborative approach? Scratch down a couple of names there about things that could be a little bit left field, but something that could lead to the sorts of innovations and collaborations that Ian and Lily have just both spoken about, but also that Christine spoke about a little bit earlier. Set yourself some homework as we go through today's session.

**David Pembroke:**

So again, thank you Ian, for your presentation.

**David Pembroke:**

I'm now pleased to introduce our third and final speaker of the first panel, Dr Michael Crawford, who is the chief executive officer at the Soil Cooperative Research Centre. Dr Crawford has over 25 years’ experience in extension research and science management in areas related to soil science, farming systems and natural resource management. He started his role as the inaugural CEO of the CRC for high-performance soils in September of 2017. Michael, a very good afternoon to you.

**Michael Crawford:**

So, thank you again from me to the organisers for the invitation. I had tuned in; I had logged in to the earlier webinars and discussions in this series as a spectator and quite engaged in the discussions. So, when they came to number five and I got an invitation to actually be on the panel, I was very excited and honoured to be part of it.

**Michael Crawford:**

And in talking about the Soil CRC and our contribution to this topic, there's actually two things I want to pick up on. One is the importance of soil to building better food systems. And the second is the concepts of CRCs as a means by which we do get collaboration and innovation, so bringing the two together as a Soil CRC will enable me to pick up on some of those themes.

**Michael Crawford:**

So firstly, a little bit about the Soil CRC. Essentially, it's collaboration of farmers, industry, and scientists working together to find practical solutions for Australia's underperforming soils. As all CRCs are cooperative research centres, we're bringing industry and research together to address industry issues. In our case, it's about soils, it's about agriculture.

**Michael Crawford:**

So, our purpose is to give farmers the tools and knowledge they need to better manage their soils to increase their productivity and profitability and thereby allowing Australian agriculture to grow to the $100 billion target, which we're all familiar with, by 2030. And my argument, my premise, is that there's a lot of things we need to get right to reach that target.

**Michael Crawford:**

It all starts at the soil. 95% of the food that we eat has its genesis in the soil. Either though the grains, vegetables and fruit that we eat, or the meat from the livestock that eat the pastures and the fodder or the grain. Essentially there's three primary ingredients: sunlight, water, and soil. Sunlight is guaranteed - despite what you might think sometimes, the sun will come up tomorrow. Water's the least controllable. Sometimes it rains, sometimes it doesn't rain. The soils are one of those ingredients, one of those inputs that we can manage.

**Michael Crawford:**

So how do we give farmers the tools to better manage their soils to achieve that outcome? So, the Soil CRC, as a CRC, we've got funding from the Australian government and from our participants for 10 years. We've just finished our fourth year of our 10-year program six years to go. We bring together 40 participants from across the country. All states of Australia are part of the CRC with eight universities, four state government agencies, eight industry groups, and importantly we have 20 farmer groups involved - 20 grower groups, 20 farmer groups.

**Michael Crawford:**

Collectively, it makes us the largest collaborative soil research effort in Australia's history. The importance of having the grower groups, the farmer groups, there at the table as part of that process is integral to the success of the CRC. But they are there, not just at the end of the innovation cycle, but they are there right at the start helping to identify the priorities, helping to develop the projects, the proposals, helping to implement the projects with the researchers, helping to interpret the results, helping to communicate the findings. Helps to make overall the research outputs more usable, more likely to be adopted by farmers, by our end-users. I can come back to that theme later.

**Michael Crawford:**

As a CRC, we have four major programs or research areas. One is about looking at new mechanisms for financially rewarding management of high-performance soils. How do we incentivise? How do we motivate? How do we reward farmers for better soil stewardship? Not just through higher yields, or higher profits, but through other parts of that value chain. We're talking about getting that feedback from the end consumer or from financial markets in different ways.

**Michael Crawford:**

We're looking at new ways to measure the performance of soils. What you don't measure, you can't manage. So, what are the important metrics, especially from a biological perspective? And how do we measure? What are some of the new sensor technologies that we can use and develop and use for farmers that helps them get more timely, rapid and accurate information about their soil performance? And, as in all sectors, a whole lot of data. What to do with the data? How do we gain additional insights into our soil management for that data?

**Michael Crawford:**

New advanced and innovative products to increase soil fertility and function, in addition to the traditional suite of fertilisers and soil amendments. What other things that we can use that are developed that are more innovative in their approach? So, using nano technologies, et cetera, but also how can we reuse, recapture, recycle nutrients in agriculture for use of organic soil fertilisers and amendments.

**Michael Crawford:**

And the fourth major area around integrated soil management solutions that provide greater precision for farmers. How do you bring this all together in a paddock, in a field, in a farm, in a farming business, in a way that integrates with all our aspects of what farmers need to do in a way that best works for farmers and helps to increase the chances of adoption?

**Michael Crawford:**

So that's just a skim through of our projects and overview of the Soil CRC. And you can find out a bit more about some of those projects through our website and in the various media channels. David, I'll leave it there as a quick overview.

**David Pembroke:**

Thank you very much. Dr Michael Crawford there from the Soil CRC and certainly soil is a big part of the challenge around agricultural innovation. And you can see the work that the Soil CRC is doing. Michael did put up the slide for getting more information about the Soil CRC, and I'm sure he'd be very happy for you to reach out to him to ask, post this webinar today. If you do have any specific questions, I'm sure he'd be happy to take those, but certainly as a panellist now he will certainly be keen also to answer your questions today.

**David Pembroke:**

So, we are going to go to the first of the questions that we have. And if I may, I'll start with a question about regenerative value chains. So, the question is what about looking into regenerative value chains to not just maintain farms and the environment, but to improve them? Lilly, I might start with you on that. The question again, what about looking into regenerative value chains to not just maintain farms in the environment, but to improve them?

**Lilly Lim-Camacho:**

Thanks for the question, William. Look, there's a lot of work happening on the ground. The regenerative movement is a grassroots movement that we can see, and there's a lot of engagement and collaboration amongst communities and across the value chain through that. I have seen examples of it being quite localised value chains, where people really connect with communities close to them to deliver organic food, in some examples, coming from what they would call regenerative farms.

**Lilly Lim-Camacho:**

Now, the only limitation to that is you can only get the most benefit out of it if you have the evidence and the proof that what you are doing actually is making a difference. And that's the challenge. Some of these things take a lot of time before you can actually see a physical difference. And so, what we are doing from the science space is making sure that we are investigating and exploring what are the actual changes in the soils, as Michael had mentioned. What is happening with the carbon stock? What is happening with the quality of the health of the soil in there and the future productivity? Because without that evidence, you can't truly say that you are actually truly regenerative and looking towards the future. And that's the important thing that whenever we aim for sustainability, we actually do it in a way that brings the benefit back to us as well and using information and evidence that will support our actions and statements.

**David Pembroke:**

Okay. Dr Crawford, I believe you could add to that answer from Lilly?

**Michael Crawford:**

Yeah, when I heard the question, I felt I could answer this but as Lilly was speaking, she largely did answer it. But to highlight value and talk about regenerative value change, which can mean many different things to different people. That's one of the research areas that we are looking at it in that first area that I spoke of, as with CSRIO and others around the country. And that concept of how we capitalise upon consumer and community interests in the credence values of our products, especially in this case, in relation to the soils and how do we enable those funds to flow all the way back to the farmers to incentivise them, to motivate them. As the question says not just to maintain, but to improve.

**Michael Crawford:**

And I'll just add another point there, we've been doing some surveys of farmers across the country, north central Victoria, Eyre Peninsula, Western Australian wheat belt, moving down to central west New South Wales. And it's something like 95% of farmers aim to leave their farm in a better state than what they have it for the next generation. Now, there might be some argument about how you define that better state and what it actually looks like, but at least the intent is there and farmers are actually trying to improve their soils and their natural resources, at least as an objective.

**David Pembroke:**

Certainly, makes sense. I imagine that all farmers across Australia are looking to improve the productivity and the capability of the asset that they have and the stewardship of that asset. So, Dr Crawford, thanks for the answer. Ah, the next question again to you, Lilly, and the question is, my question to Lily is that as much as a subset of stakeholders who want to move towards more sustainable agricultural practices, many are still focusing on yield. What are your thoughts on that and suggestions on possible strategies to encourage more stakeholders to take sustainability more seriously? Lilly?

**Lilly Lim-Camacho:**

Thanks for this. I think this is a brilliant question actually, because it's an ongoing saga that I encounter whenever we talk value chains and sustainability and climate change. Look, sustainability is real. Targets that we are seeing across the board from corporations setting them, to national governments actually stating that they will have net zero emissions. We've already seen from the canola industry back in 2018 when we could not export until we actually provided evidence on what the carbon footprint was of our canola. That was to Europe.

**Lilly Lim-Camacho:**

Now imagine that happening for every single product we export. Are you prepared to deal with it? And will you be able to provide the information immediately? I don't think so. And we haven't got all the processes in train, but let's get ready because we're already there. This year in particular, sustainability has been in such a high profile in national and international talks, including trade. And you would have seen the Brexit conversations and what was happening between UK and Australian trade relations. Our farmers are very nervous in terms of what it means to export to the UK. And the UK farmers are also very nervous in terms of what it means to be importing Australian produce.

**Lilly Lim-Camacho:**

So, it is a real issue and yield is no longer where value is made. It's what we wrap around that yield. That's where the hundred billion dollars is going to come from. It's not about the number of products that we're going to be producing, it's how much is that value that we are producing?

**David Pembroke:**

Thanks very much for that answer, Lilly.

**David Pembroke:**

And to you, Michael, the next question is from Kay Hull. And the question is do you think our RDCs are well-equipped to commercialise our research and development and innovation so that our industries can maximise their competitiveness? We might start with you Michael Crawford, and I'm sure Ian Olmstead, you may also have a view.

**Michael Crawford:**

Yeah, thank you, David. And thank you, Kay, for the question. And I was thinking that it'd be good to bring Ian on because he actually works for an RDC rather than me speak on behalf of the RDCs.

**Michael Crawford:**

But so, my first part of the answer is yes, they are well equipped to commercialise our R&D and innovation, but they are one player in the innovation network that we live in. And depends on the type of innovation that we're talking about, but whatever way you look at it, there's going to be different partners, different participants in the pathway to market in the actual adoption of the technologies. And in some cases where you're talking about capital C commercialisation, highly valuable IP that actually requires a partner to be involved in the manufacturing of some sort, et cetera, and taking it to market and servicing and supporting.

**Michael Crawford:**

We're looking at partners there, but there's other types of innovations very much in the public good area and looking at what's in the soil spaces as well. Around practices around know-how, around guidelines and working with a range of partners, especially our grower groups and state government agencies and the private sector, and the consultancies sector, advisors, et cetera, to take them forward. But in summary, RDCs are a key player in the network. Ian?

**David Pembroke:**

Okay, thank you very much, Michael Crawford. Ian Olmstead, same question to you. Do you think RDCs are well-equipped to commercialise research and development and innovation such that our industries can maximise their competitiveness?

**Ian Olmstead:**

Yeah, look, I think it's a really good question. And I think it's an area that at times we probably need to get a bit better at in terms of how we undertake. I think we're very good at undertaking research and I think we're very good at delivering outcomes against research and then taking those outcomes into a commercialisable product, I think is sometimes a bit of a spark gap that is not really in our remit as much.

**Ian Olmstead:**

So there has been good examples with Dairy Australia. We need sort of almost a third-party commercialised nation entity, or a spin-off company that takes that IP and pushes it into the market and provides that offering. One of those was DataGene, a company that's sort of taking the outcomes of the significant body of research in Dairy Australia and developed a product offering that looks at optimising herd genetics and understanding the value of breeding values. But there is a point where I think we could perhaps adjust the operating model slightly so that we could provide better commercial outcomes for the R and D that's undertaken, so I think there's still an ongoing work to be done there.

**David Pembroke:**

Okay. Fair enough. Now, listen, Ian, we do have another question for you. Can you provide further examples of how collaborative networks within the dairy industry have supported progress towards more sustainable food systems?

**Ian Olmstead:**

Yeah, thanks for that. It's another great question and I think there's been a number of things that I've been involved with through again, the Dairy Manufacturers Sustainability Council, which is a collaboration between all the major dairy manufacturers, which has looked at undertaking work on specific areas or specific challenges around, say, sustainable packaging or around food loss and waste across the value chain. And so, some of the work that we've done within those sectors is really bring together all the packaging personnel within those dairy brands to understand how we can move much more effectively and rapidly to deliver on the national packaging targets for 2025. One of the outcomes of that has been a roadmap for action that we've put together, which looks at key strategies for delivering on those targets, and also provides a really clear signal out to the market around the areas where we're going to need sort of collective action and support, so that's one area where we've done a fair bit of work and where those networks have really helped.

**Ian Olmstead:**

Interestingly, it's also led into a body of work now where we're, I guess, the networks, and the contacts that were made through the packaging work has also allowed us to really understand the plastics sector within Australia. And so, we've recently won a large government grant under the National Product Stewardship Investment Fund to look at how do we improve and provide circular economy for solid plastic on dairy farms. So, we're actively developing a product stewardship scheme now, which will look at collection and recycling of plastics on farm and really driving those to the highest order outcomes that we can. So, hopefully back as a recycled component in new silage films, acknowledging that those plastics that are a really important part of fodder conservation on dairy farms.

**David Pembroke:**

Thank you very much, Ian. And we will be coming up and hearing very soon from Dr Melony Sellars. So, stay tuned for that, only a few minutes away, but we'll get one more question before we get to Dr Sellars and it's to you, Michael, and it says, "Payment for ecosystems service, PES, is a new financial tool that may incentivise soil management that pays soil managers, the farmers, for carbon capture. Can you describe if this is being used in Australia, and what may be some of the potential of PES in Australia?"

**Michael Crawford:**

Thank you. I'm not quite sure, pardon my ignorance if this is the case. Is paying for ecosystem services PES a specific program that we're talking about, or a general concept of paying farming services, and services more generally, which we have been speaking about in a whole - and piloting in a whole range of ways across Australia for quite a while now, for a whole range of ecosystem services.

**Michael Crawford:**

And so yes, it is being used and being trialled in Australia, and there is potential. And of course, the most obvious manifestation of it at the moment is around carbon sequestration in a whole range of areas of vegetation management, and also in soil. And some of the key questions that come into consideration of incentivising soil management is who pay soil managers for carbon farming - who pays and who benefits? And so, there's programs where a government might pay, essentially the taxpayer, the public and there's programs where we're looking to set up and facilitate schemes where the private sector might pay, and for that reason offsetting there, and then buying the services, et cetera.

**Michael Crawford:**

And then the extent to which it's the concept of additionality, is it a pain for farmers with something that we're going to do anyway? Or is it helping to incentivise a change in practice, a different practice, additional practice beyond what they're already doing in a way, which I think we could have a whole session on this, and a whole lot of other experts with a lot more expertise than me, who could contribute to that discussion. I'm going to leave it there.

**David Pembroke:**

Michael, thanks for that. And indeed, we may in fact, take you up on that in future months and years ahead. Maybe it is an area that we do need to explore further because indeed I think that the department, certainly through these Food Systems Summits, demonstrated the credentials about wanting feedback from stakeholders. So indeed, that could well happen into the future, but thank you very much for that answer. So, we will now go to Dr Melony Sellars, who is the Chief Executive Officer and Managing Director at Genics. Dr Sellars worked at the CSIR0 for nearly 20 years, developing novel biotechnology solutions to solve the shrimp industry's biggest challenges. And just so you are aware, Melony will be speaking to us today and she will not be using a slide presentation. So, Dr Sellars welcome to today's webinar and away you go.

**Dr Melony Sellars:**

Thank you, David, and welcome everyone that's listening. So, I've been asked here today to come and talk to you about some biotechnology solutions that our company Genics, which was a CSIRO startup, licensed from the CSIRO, and has been busy taking to the global and domestic shrimp market for the last two years or so. And having some real impact in how we produce shrimp as a food. So, a biotechnology solution that the company Genics has licenced out of CSIRO is Shrimp MultiPath as one example. And this is a technology that detects 13 pathogens or diseases of shrimp or prawns in a single assay. Now, it's a very unique because current technologies before Shrimp MultiPath could only test for one pathogen at a time. So, it was not affordable for farmers to understand the pathogen risk and loading in their animals at any point in time.

**Dr Melony Sellars:**

So, for the first time, farmers can now cost-effectively afford to screen for pathogens in their shrimp and multiple pathogens at one time. That's really important because shrimp have three to four pathogens at any one time, and up to any of 13 pathogens. So, what we found for the first time with Shrimp MultiPath is that farmers can afford to understand the pathogen loading in their shrimp at all stages of production. And as a result of that, they can then implement health management programs that give them the data to make decisions, to improve farm profit and maximise the outcomes. So, when we started up a couple of years ago, the FRDC, the Fisheries Research and Development Corporation, through a collaboration with Genics, we were able to invest and work on data that demonstrated the value proposition of Shrimp MultiPath in our domestic industry. And today we've seen a 95% of our industry are using Shrimp MultiPath here in Australia to understand their pathogen loading.

**Dr Melony Sellars:**

And they are able now to produce a healthy post larvae or baby shrimp, which they put in their ponds and produce up to $52,000 more US per hectare as a result of that technology and smart management decisions. So, the types of decisions that we see our farmers make through the Shrimp MultiPath data are early harvest or increasing aeration to reduce shrimp stress, feed different diets that improve gut health, as a result of the information they get. And we can give a farmer early warning by up to four weeks that a pathogen or disease is present and becoming prevalent before they would typically see sick animals. So, it's a really early warning system for the national and global shrimp industry to be able to make those huge improvements in the food production sector. So that's a really nice, I guess, tangible demonstration of collaboration, working together, and how innovation drives sustainable shrimp production globally.

**David Pembroke:**

Thank you so much for that practical demonstration of the impact of innovation on productivity in a key Australian agricultural industry. Now, Dr Sellars will now join the panel, and she will answer questions along with the other panellists. And I would indeed encourage all panellists to jump in if you feel at any point that you'd like to add to an answer that might be out there - make sure that you don't hold back and that you give the audience the benefit of your wisdom and insights. Now, we do have a question for Dr Sellars off the back of her presentation. And the question is how will this biotechnology impact the shrimp industry on a global scale? So, what is the impact on the shrimp industry or the potential biotech- the impact of this biotechnology on a global scale?

**Dr Melony Sellars:**

David, thank you for the question. So, within 18 months of having our licence to operate here at Genics, we already serviced over 30 countries around the world, and that's a real achievement in demonstrating that we are meeting a real problem for this industry in terms of multiple pathogen detection that's cost-effective to manage the risk. We are servicing countries like Ecuador, Indonesia, Europe, Malaysia, Thailand, Vietnam, Guatemala, all around the world. There is no limit to where we produce shrimp these days.

**Dr Melony Sellars:**

And as an example, a really nice example of a change that we've driven within that very short timeframe is in Ecuador. In Ecuador, shrimp farmers historically just grew their animals and accepted they were exposed to pathogens and they did the best they could with a 14% survival rate in their production ponds. In that really short timeframe that we've been working with shrimp producers in Ecuador, we're working with some innovators and some very key players that we've been able to change the mindset of that industry to a point now where they understand if they can produce healthy post larvae or baby shrimp that don't carry pathogens, they will improve their production by over 10%.

**Dr Melony Sellars:**

And now in Ecuador, the impact has been so extreme that the majority of farms, stocking their farms, will request Genics tested post-larvae on Shrimp MultiPath to put into their ponds. And we get inquiries every day from producers in that region for animals that have been tested with this technology solution, because they know it improves production on the farm.

**David Pembroke:**

That's amazing. In terms of - you said 18 countries, like what's the potential though, beyond, those 18, is it hundreds of countries who could potentially use this technology?

**Dr Melony Sellars:**

Sure, so we actually service over 30 countries, which is incredible, but shrimp production now we are seeing globally produced in every region of the world. There are shrimp farms in Germany, Austria, and France, they're all using waste heat from different services. Our newest innovation has been using waste heat from data centres as one example to heat sea water and grow shrimp in recirculating agriculture systems. So, there's no limit here to our imagination. I also think there's real interest in local shrimp production in cities. So, think of a container ship, lots of layers, lots of tanks, shrimp produced, you know, locally, just in the back suburbs behind a capital city and the business model around that is very compelling.

**David Pembroke:**

Fantastic. Well, what a great story and really be interesting to see with more time, just exactly where this story is going to finish. It's a great story, a great Australian success story. The next question is to Dr Lilly Lim-Camacho, and it says, the question is, "What are some key things businesses can do to develop sustainable value chains? "

**Lilly Lim-Camacho:**

I think there's so many things you can do to do that-

**David Pembroke:**

We've got time.

**Lilly Lim-Camacho:**

The sky's the limit. Where do we start? Look, if I had my own value chain that I ruled over, first thing I would do is get to know what my resources are and what I can do, focus on what are my goals here, what are my priorities. And then from there start to see, where am I at? Understand where you are in your baselines. What do you know of, say for example, the amount of energy and fuel that you're using, really simple, and then go outside of your scope, move down to your suppliers and your customers? What are they doing? What can I do to help them out? So, you know, we've got the scope, one scope, two scope, three sorts of mentality. Start with your business with scope one, scope two, look at your energy across the board, and then scope three, look at your suppliers and your customers.

**Lilly Lim-Camacho:**

So that's always how we tend to think of our footprint or our impact, but in terms of sustainability, there's also so much you can do with people, communities, and society. How do you help them? What can you do to impact that? What can you do with your packaging? What can you do with your transport? Anything that you can do that you can measure and see progress will keep you going. If you can't see progress, it's going to be hard to motivate yourself. So, it's really important to focus on a goal and make sure that you are seeing yourself and track towards it. I'm sorry, if there is one thing I'd ask you to do, go and start planning it, because if you don't have a plan, it's going to be very hard to see where you're going.

**David Pembroke:**

Yeah, and in terms of those plans, you know, how ambitious should you be in terms of the progress that you're making? Is it just incremental progress that hopefully will sustain people? Or do you find that people are always looking for the big bang, for the big progress?

**Lilly Lim-Camacho:**

It's always exciting when people are putting things out there that's huge and massive, massive goals. And look, a lot of progress has been seen when you set big goals, but then they can also stymie people's motivation because they're too big and too hard to actually achieve. So that question is best answered by the people who are doing it. What is your appetite towards doing this, and who can support you move forward more? So, sustainability is not just all about the actions. It's about the coming together. Again, it goes back to that collaboration sort of bit, it's a group of people coming together, agreeing that this is what we're going to do, and this is how we're going to do it. And this is what we're going to learn along the way.

**David Pembroke:**

Okay. Thanks for that. Ian, you've got something to add to Lily's answer?

**Ian Olmstead:**

Yes, I think it's a great answer, Lilly, and it's a great question. I think what we've found and just to reinforce Lilly's point, I suppose, in the dairy industry, is that probably I think it was about 10 to 15 years ago, the industries come together and developed a sustainability framework that really lays out our targets, our sustainability targets, across the supply chain or value chain. And that's really provided a bit of a roadmap and a guidance for us as to how well we're tracking, and really allowed us to be a lot more transparent around the activities that are taking place within our value chain to improve performance ongoing, and really meet the expectations of consumers and the environment and investors. I think that, you know, as Lilly has mentioned previously as well, I think that it's really important to track progress.

**Ian Olmstead:**

So, to be looking at how do we measure metrics against our sustainability targets, and do we have the right metrics? Do we have the right targets? Are we using the right language? And so that's a really an ongoing discussion within dairy industry, but, you know, I think the things that we've seen, and I guess the stories that we're able to tell because of that are quite powerful? So, within the dairy manufacturing sector, we've actually reduced absolute greenhouse gas emissions by about 27% since 2010. So, we've seen some really good progress, but we wouldn't really know that if we hadn't been tracking it over time. So, I agree that it's really useful.

**David Pembroke:**

It's interesting though - the power, you just mentioned the power of stories. Christine told the story earlier around the red lentils, Melony's just told a wonderful story. They do capture people's imaginations; they do capture excitement. And again, it just needs information contained in a story is so engaging. So, I think it's something that we all need to think about as we go through these various journeys around agricultural innovation - where are those stories? And let's make sure we capture those stories, and we tell those stories to inspire and encourage people.

**David Pembroke:**

So, to the next question, from Nancy Bolin, and it's to all of the panel members, so all have a go. All panel members have talked about collaboration and cooperation in innovation. But my question is to Dr Michael Crawford is, how do we achieve greater engagement by the end users in collaboration and cooperation in relation to identifying research priorities and achieving innovation? Dr Michael Crawford?

**Michael Crawford:**

Thanks David. Thanks Nancy. This has been something that we've really tried to focus on in the Soil CRC -- giving life to the ethos of farmer-led research. I sometimes say the research we do in the Soil CRC is farmer driven, but it's not driven by every farmer. If we took that approach, it would mean having 10,000 different research projects looking to meet the needs of 10,000 different farmers. So, it's how you actually synthesise it, and get it a clearer view about research. We put a lot of emphasis on engaging with our grower group participants in the CRC, involving them in discussions, right at the early stage, so it's not a case of researchers coming along and say, "Here's a project which I've developed. Can we put you down as partners on the project?" and they say, “Okay, but I don't really know what's going on here”, its having them involved in the conversations way back at the start.

**Michael Crawford:**

And that's predicated on developing relationships, developing a respect, speaking a common language, understanding where everyone's coming from. It has been a real challenge within COVID, not being able to bring people together physically, because that really does help to cement and establish those relationships. We've gone to using online technology where we can, it's somewhat of a substitute, but it's not perfect, but coming back to the question, really about involving our end users in those discussions right from the start would help them to identify priorities. Thanks, David.

**David Pembroke:**

Ian Olmstead, you've got something to add?

**Ian Olmstead:**

Yes, I'll just build on Michael's points there. I think that we, again, within the dairy industry and in the manufacturing sector specifically, we tried to do that within the groups I've worked with quite a bit, just starting to understand the needs of that group by having those conversations early on and bringing them along on the journey with us.

**Ian Olmstead:**

So, one of the things we've just recently completed is an innovation partnership, where we looked at bringing that Dairy Manufacturers Sustainability Council together and unpacking what their top three innovation challenges were. What were the areas that were reducing food waste, improving energy use, and reducing greenhouse gas production, greenhouse gas emissions, and waste to landfill? By understanding where their sort of focus areas is, where there is a sort of a pre-competitive need, that allowed us then to go to the next step and look at screening out the technologies that would support them in that area. And then coming back to them and saying, "Is this what you're looking for? Does this make sense? Are we actually really meeting the need here? Or is this off the mark?"

**Ian Olmstead:**

And so, there was this kind of an iterative process with the groups as we move through that innovation cycle to understand are we identifying true needs, and have we really understood the problem? So, I think in order to get that end user uptake, we need to continue to have that open conversation. And I do think that's where those collaborative networks come in and where you've got that trusted relationship between yourself and the end user. They then believe that you are acting in their interest to bring technologies to them that are of use and of value.

**David Pembroke:**

Thank you very much, Ian Olmstead. So now to our final panellist, Tanya Kilminster, who is the Interim Knowledge Broker at Grower Group Alliance-led South West Western Australia, Drought Resilience and Innovation Hub. And I hope you can get that onto a business card. Tanya joined the Grower Group Alliance in April 2020. She brings nearly 20 years of experience in systems research and development, specifically focused on sheep production management, and the role of sheep in the farming system. Welcome to you, Tanya.

**Tanya Kilminster:**

Hi David, and thanks for having me today. And it's really nice to actually segue from Michael and Ian's answers that were just about thinking about the grower and the problem definition. And I think this talk will follow on quite nicely from there. So, I guess what I'll be doing today is talking about our experience here in WA, and our vision of a grower-led system of agricultural innovation, adoption and collaboration. So, the GGA is a not-for-profit organisation that represents over 60 grower groups here in the west and over 4,000 agriculture businesses.

**Tanya Kilminster:**

Our traditional base has been broadacre farming systems groups, but as is the WA agriculture industry, we are now a highly diversified representative network. And the grower is absolutely core to what we do. GGA has a strong history of supporting capacity building of our groups because we need fit for purpose groups. And we also support our groups in their own endeavours with their own applied research and extension because the groups know their regions, and their priority issues, and their systems better than anyone. And so, we have that role in helping connect grower groups and the right research organisation and the right investors to help pull that work together. And I guess this ultimately leads to profitable and sustainable farming businesses that can produce food for Australians and globally. The following map just gives you a bit of an idea about where all our grower groups are located in WA, and you can see that it's quite a vast region and we've got specific, or we've got very different farming systems and commodities that are represented.

**Tanya Kilminster:**

And so, the opportunity that we have with the GGA being able to lead the Southwest WA drought resilience adoption and innovation hub, and yes, it is a mouthful, under the national Future Drought Fund. We'll see GGA leverage off this really extensive grower group network that we have in a hub and spoke model where the hub is located here at Merredin in the sort of central and Eastern wheat belt of WA with our nodes spread strategically throughout the Southwest of WA. And we plan to facilitate greater innovation and adoption from the ground up and that's really important. And we work with over 40 consortia partners that includes grower groups, universities, state and federal government, and other research organisations. So, most people online probably know that WA is very well-known for being a strong export state with about 80% of what we produce going abroad, valued around $7 billion.

**Tanya Kilminster:**

In terms of the hub, we start around Carnarvon, which is halfway up the west coast, heading down to east of Esperance toward the South Australian border throughout that southwest region. And we encompass broadacre cropping systems, intensive and extensive livestock production systems, horticulture, and viticulture. But what we're probably mostly known for and very proud of is our large world-class broadacre cropping systems - we have a $6 billion grains industry dominated by wheat production. Probably lesser known is that about 70% of our businesses still run a livestock enterprise. And that's usually Merino sheep for wool and meat and adding another $1.5 Billion worth of value to the WA economy. Also of significance is that we are predominantly made up of family farm businesses - owned and managed. Like anywhere, we're facing many great challenges here in the west.

**Tanya Kilminster:**

And these are across all value chains from investment into long-term transformational research to international competition, but probably what's at the forefront of most growers is that we are having drier climates and greater seasonal variability. And I guess most WA growers really want to see an accelerated adaptation with the right research, the right tools, and the right innovations being invested in. Just quickly, these maps here of Australia show our climate classes and the map on the right shows the last 20 years where we've seen a rainfall shift south and west. And probably more significant here and that was compared to the 100 years previous and probably of significance is the 36-kilometre shift west of our rainfall, mostly seen impacted in the grain belt of WA. And so, what we're seeing here is hotter dry climates, and that's really been impacted in the last 20 years.

**Tanya Kilminster:**

So now we need to be asking those questions about our land use change with a lot less water. In the last 20 years we've seen a 20% decline in our winter rainfall across most of the grain production region of WA and greater variability. But in saying that, we've had huge technological advancements and adaptation. In terms of some of the examples, and as David mentioned I'm a farmer, so I can sort of speak from some of the things that we've implemented and seen for ourselves, the technological advances include plant breeding. So, we're seeing phenotypes that can produce more yield on less moisture. In terms of machinery, we've seen nearly 100% adoption of no-till systems in WA systems. We're also seeing precision agriculture where we're seeing less wastage of inputs and more targeted applications. And in terms of management, better timeliness, and utilisation of weather forecasting with more confidence.

**Tanya Kilminster:**

And so, we can actually have much better decision-making and manage our risk. Also, what we've seen in the last decade is a huge improvement in farm financial literacy, much more robust drought policy in WA. We've seen farm planning workshops rolled out throughout the state. And I guess when it comes to land use diversification, we're seeing more robust and objective decision-making about the enterprise options by land unit. And so, we're actually being able to drive whole farm profitability because we are actually making more objective decisions around the land use. But we are at a point now where a stepwise change is upon us and it's not business as usual. So, in WA, if we just look at the grains industry alone, we have a lot to protect. On average, about 15 million tonnes of grain is produced each year. And of that, about 85% of it is exported into global food systems around the world, but variability and volatility are here and every farmer in this state knows it.

**Tanya Kilminster:**

So, we see the GGA with this extensive network of grower groups, big grower members and our hub partners have an incredibly important role to play. As an industry, we really have adapted well to seasonal variability and climate change, but we now have to go for it. And this accelerated and collaborative effort for transformational change is needing to happen. So, we see the hub as this really great opportunity for growers and grower groups to continue working in that traditional RDNA space, however we see that extended nationally and also internationally to drive innovation and adoption.

**Tanya Kilminster:**

In the very short time I've had, I really hope, a bit like what Michael said, it starts with the soils. Well, for us, it starts with the farmer and we see that we need to really work together as an industry to drive through collaboration and cooperation to succeed in this increasingly competitive world. We need farmers to be productive, profitable and sustainable, and we also need farmers to be part of the conversation when we're talking about better food systems. And so, I guess I'll leave it at that. I'm looking forward to being part of the Q&A session now. And this is some of the team for the GGA. So, thanks.

**David Pembroke:**

Thank you very much, Tanya. And we do have a question for you, so if you would just stay on the line there. You mentioned this shouldn't be business as usual. What do you mean by this and how will the Southwest Western Australia and hub change that? How will you introduce change and innovation through the hub so that it's not business as usual?

**Tanya Kilminster:**

Thanks, David. In the past we've really seen a lot of the R&D that has taken place through solo lens, I guess you would say, that is we've worked on each commodity on its own issue. But when we come to farming businesses, we are multi-enterprises often in multi-landscapes, and so we really need to look at it through a systems approach. And I think what the hub model does is drive greater investment in that, and that's what we've been lacking. So, we can have innovation, but we need a greater amount of investment to really start to unlock the complexities of the systems. So, I think I don't have the answer right now, but I think the hub gives us that framework to really start unlocking some of those complexities to really look at it from the systems and with the collaborative effort across the nation, I think we're going to accelerate some of these changes.

**David Pembroke:**

Great. Thank you very much for that answer. So, to resume questions from the audience, and again, thank you so much for the contribution you've made to today's webinar. Very strong numbers still from all around Australia, listening in this afternoon. So, thank you very much for your time and your attention. But the next question is to Dr Michael Crawford, and it's from Kay Hull again and Kay asks, "Following on from the carbon question, how or where do agriculturalists get access to carbon pricing market information to enable good business decisions relating to financial opportunities in the carbon market?". Dr Crawford?

**Michael Crawford:**

Thanks, David. And let me begin by saying I'm just a humble scientist. And this takes us into a realm that extends well beyond the actual science aspects of the whole range of regulation, financial business management type aspects, et cetera. I'll make these points around carbon pricing - it's not too hard to find information around that using the internet, et cetera. I think what's behind the question is about being enabled to make good business decisions. There's plenty of carbon brokers out there who are now looking to play a role in helping farmers, agriculturalists to access various programs, be it the government’s Climate Active program or various voluntary markets that are springing up, each with different levels of verification, et cetera. So key considerations are what are the costs as well? What are the measurement costs? What are the verification costs?

**Michael Crawford:**

What are reporting costs from day one through into the future? The covenants that are imposed upon your farming business, should you wish to transfer your property, sell your property into the future, bearing in mind the key aspect around carbon markets and carbon sequestration and soil analysis, it's this concept of permanence, of being there for at least 25 years, or if it's not there, who wears the risk, and so understanding the risk profile associated with these. So, there's a whole range of considerations there, but they need to be looked at, and seek good advice.

**David Pembroke:**

All right. We do have another question this time from Rob Kelly and it, again, it is to you Dr Crawford, and guess what? It's about carbon once again. And the question is, do you see scope for farmers to unlock additional income streams through better stewardship of their soil, such as soil carbon or sustainable soil management?

**Michael Crawford:**

So, David, I'll take it in the broader context. So not just soil carbon, but sustainable soil management as well. So, the quick answer is yes, we do see a scope for it, and that's part of the research that I alluded to in our first program. And just to give you some quick examples of work. Two projects both being led by Charles Sturt University and the Soil CRC and other partners. We're working with financial institutions. There's a lot of interest from banks about how they can more finely tune their loan book to attract those borrowers who might be able to demonstrate a greater higher level of soil stewardship. And the logic being that better soil stewardship leads to greater resilience of their farm, of their farming system, of their farming business, and a lower risk for the banks in lending money, especially in times of drought and alike. So how might they incentivise or attract those farmers through interest rate deductions or greater access to equity?

**Michael Crawford:**

So that's one project we're working on with the financial institutions. And it's been a great challenge try to understand each other language between the soil scientists and the bankers. We get a lot of questions from a financial person. So how much will the soil carbon change in three months on a quarterly basis? And to try and then explain it, you might not see too many changes for up to five years, it's not a quarterly type thing.

**Michael Crawford:**

Also, another project, looking at consumer willingness to pay for products that can demonstrate that they've come from a farm that's practiced good soil stewardship. And I've done some innovative work with marketing companies and focus groups in Sydney, in Melbourne, and also in regional areas doing a dummy packaging of Weet-Bix or meat products, or pasta products, or tinned vegetables with labels on them that highlight soil stewardship type credentials and consumers are saying, "Yeah, we'd pay extra for that."

**Michael Crawford:**

But the challenge is actually converting that into practice and making sure the money would go all the way back from the shelf on the Woolworths or Coles supermarket shelf all the way back up the chain to the farmer. And also, how it competes or how it sits alongside other aspects of consumers who are willing to pay for, like animal welfare or carbon footprints or water footprints or biodiversity protection or fair trade, et cetera. So ,some interesting research there, but we do believe that there is scope for farmers to unlock additional income streams for better stewardship of their soil.

**David Pembroke:**

How confident would you be that their consumers will pay? It's one thing to sit in a focus group and say, "Oh, yeah, I'd pay for that." And it's another thing to actually scan your card and take a bit more money out to pay for it. So, you think that people would actually do it?

**Michael Crawford:**

Yes, focus groups can say that, but actually, the challenge is to turn that into practice. So that's part of the research we're doing to see that happen. I think Lilly might be able to add to this answer too.

**Lilly Lim-Camacho:**

I do. I used to work in market research and so you always add the clause that, yes, it's different when you're doing a focus group or a survey, but there are so many techniques now that make it a bit more real. And so many things that can be done at point of purchase where you might test a pilot, something at this point. So, we are getting more nuanced in terms of how we interact with consumers and how we might test ideas. And look, to be honest, online makes us very nimble and agile. We can put things out there and pull it back very quickly. We know it doesn't work, so we don't need to go all in so quickly.

**Michael Crawford:**

Also, just to add quickly, it might not even be unlocking additional income streams. Other aspects of this might actually be permission to operate into the future. But we need to be doing this, otherwise we don’t have a market, either domestically or internationally.

**David Pembroke:**

The final question today is to Tanya Kilminster. And the question is from Nancy Bolan - I understand that the majority of the grain production from WA is exported. Quality assurance and consistency in the supply are the critical components of a successful export market. How are you going to help the Western Australian farmers in achieving this? How are you going to continue to build and deliver consistency in supply and using innovation to deliver consistency and quality in supply?

**Tanya Kilminster:**

Right. There's quite a bit to that question. I think there was a little bit about the QA as well. So, I guess in a way, market segregation sort of dictates that to a degree. And here in WA, we have a really excellent grain handling logistic system. So, we have very transparent data on grain quality, and obviously, we've also got the yield aspect of it. So, it does allow growers to choose their markets and choose their pricing because as a deregulated market, the grower has the power to sell to whoever they want and at whatever price they want. So that's part of it. In the past, I would say that our QA systems haven't been particularly successful, and I think that comes down to the incentivisation. Currently, if we are producing canola and we want to sell into the EU, we need to be part of a QA program.

**Tanya Kilminster:**

However, we're not seeing a price difference for that grain or oil seed every year. So, until we've got good incentivisation, it's hard to really encourage farmers or farmers to be convinced that they need to be part of a QA system. However, we all probably know that it is a good thing to do. In terms of how we continue to produce enough grain for our export markets, this is really a really tough question because as I had in my slide, on average, we're producing around 15 million tonnes of grain. We're having an absolute ripper of a year at the moment. And we're looking at maybe up to 20 million, and this will be a record for WA to produce that much. But we go down to around 10 or 11. So we need to be able to have those systems in place. It's great to have the big bang years, but we don't want to have to bust years.

**Tanya Kilminster:**

So how do we close the gap a bit or do we just bring the bottom up? So again, technological advances, we have to continue in plant breeding work - doing NVT trials in every region of the state is really important. So that's national variety trials where farmers can see those different varieties of wheat or barley or canola in their patch to know what the best plant type for their region is, and still have a really good understanding of the marketplace. So, there's probably a whole lot of other things I can answer, but I also know we're getting close to time.

**David Pembroke:**

We are certainly coming hard up against time, and we want to respect the audience because we're very grateful that you have given us so much of your time and attention today to attend today's National Food System Summit dialogue. But indeed, we are hard up against time, and it's certainly been another great conversation today, contributions from each of the panellists, but also the great questions that came through from our audience. So, thank you so much, audience, for your contribution today. And I know I speak on behalf of you, the audience, and indeed the department when I say a very big thank you to Minister David Littleproud, Christine Mulhern, Dr Lilly Lim-Camacho, Ian Olmstead, Dr Michael Crawford, Tanya Kilminster and Dr Melony Sellars for their contributions to today's webinar. We are certainly very grateful for the contributions that they have made. Now, indeed, although this webinar is now coming to a close, there is still the United Nations Food System Pre-Summit in July, and then the main Summit in September. And I will now invite Fleur Downard back to the microphone to let you know how you can engage in the Summit. Fleur.

**Fleur Downard:**

Thank you, David. And thanks also to all my colleagues at the department for all their hard work on this series of webinars. We encourage you to visit and upload your views and ideas for the Food Systems Summit using the departments Have Your Say page. We are also happy to announce an additional webinar we've included in the series due to stakeholder feedback - indigenous perspectives on Australian food systems - which will be held in early August. Further information will be available shortly on the Department of Agriculture, Water and Environment's UN Food Systems Summit 2021 webpage.

**David Pembroke:**

Great, thank you, Fleur. And indeed, certainly a big thank you to Fleur, to you and to the rest of all of the officers from the department who have done such a great job in wrangling all of the guests over this Summit. And indeed, we've got another one to come. So, the fun is not over just yet. Remember that there are dialogues happening elsewhere, both in Australia and around the world. So, for all of you who have attended each of the five webinars so far, I'm sure interesting. Dr Michael Crawford said before he was a participant, now today a presenter, but certainly a lot of interesting information, not just here in Australia, but around the world as indeed, the world looks at how it does manage food systems around the world. So, if you would like to engage further, you might like to use some of the links that are now up on your screen.

**David Pembroke:**

So, there is the department's Food Systems Summit webpage, and then there are those independent dialogues and other dialogues that are taking place. But again, thank you to all of our presenters, thanks to you, the audience, for coming along today. We certainly do appreciate it. And on behalf of the team here at Content Group, we have certainly enjoyed presenting today and each of the other dialogues along the way. And we look forward to joining you once again in August when we go through the indigenous Summit. But for the moment, thanks very much again for your attendance, but it's bye for now.