# UN Food Systems Summit National Dialogues

Webinar 3: Eating for our health and the environment - balancing nutrition and sustainability

2.00pm to 3.30pm Australian Eastern Standard Time

Thursday 27 May 2021

## Transcript

 **David Pembroke:**

Hello everyone, and welcome to the third of the Department of Agriculture, Water and the Environment's National Food Systems Summit Dialogues called today, Eating for Our Health and Environment- Balancing Nutrition and Sustainability. My name's David Pembroke. Thank you for joining me. I would like to begin today's dialogue by acknowledging the traditional custodians of the land on which we are meeting on, the Ngunnawal people. We acknowledge and respect their continuing culture and contribution that they make to the life of this city and region. We also extend that recognition to the traditional custodians of other lands on which the dialogue participants are gathered today, and indeed to all Aboriginal and Torres Strait Islander peoples attending today's event.

 **David Pembroke:**

The UN secretary general has called a food systems summit to highlight the critical role that agriculture and food systems will play in achieving the 17 UN sustainable development goals. During 2021 in the lead up to the summit, people from all over the world are being encouraged to come together to discuss how we can make our food systems more sustainable, healthy, and resilient. Joining me once again today to explain Australia's approach to these dialogues is Fleur Downard, Australia's national dialogue convener and director with the Department of Agriculture, Water and the Environment. Fleur.

**Fleur Downard:**

Thank you, David, and 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 and transparent and most importantly, to represent your views. However, it is important to note that the views expressed today are independent to the views of the Australian government. We will be summarising feedback from these webinars directly into the UN Food Systems Summit processes. The Food Systems Summit webinars are designed to start a conversation. If after today you've got more to say and contribute, that's great. You can visit 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:**

Thanks Fleur. The topic of today's dialogue, which is the third in our series is Eating for Our Health and Environment- Balancing Nutrition and Sustainability. The aim of the discussion is to explore current and emerging food choices and the intersection between diet, nutrition, and environmental sustainability. Our panellists today will discuss the latest innovations and research on this topic, and also examine how we can balance environmental and nutritional needs to address the critical issue of food loss and food waste. Our dialogue begins with a series of short presentations from three panellists, which will be followed by a question-and-answer session, which we'll explore the issues in more detail.

 **David Pembroke:**

And we are very grateful to be joined today by an impressive group of experts. We have Amanda Lee, who is Professor in Public Health Policy at the University of Queensland. Dr. Bradley Ridoutt, the principal research scientist at the CSIRO. And Mark Barthel, the special advisor at the Fight Food Waste Cooperative Research Centre. Also, during the Q&A session, we'll be hearing from Ronni Kahn, the CEO and founder of OzHarvest.

Olenty to look forward to there, but to our first presenter today is Professor Amanda Lee. Amanda is Professor of Public Health Policy at the School of Public Health in the Faculty of Medicine at the University of Queensland. She has expertise in public health nutrition, food security, and indigenous health.

Her work takes a strong systems-focus underscored by the pillars of health and wellbeing, equity, environmental sustainability, and prosperity. Professor Lee, welcome, and we look forward to your presentation today.

**Amanda Lee:**

Thank you, David. I'd like to add to the acknowledgement of country by paying respect to the Jagera and the Turrbal people who are the traditional custodians of Mianjin in Brisbane from where I'm joining today. Other panellists in this series have noted the impact of the environment on food supply and diet, but I'm going to be focusing on the inverse, the impact of diet on the environment. The FAO notes that a sustainable healthy diet is one that has low environmental impact and contributes to the food security and health of present and importantly, future generations. To achieve this, we need to transform our food systems to better deliver three main outcomes, health, sustainability, and equity.

**Amanda Lee:**

As we've seen in the current pandemic, our prosperity really depends on this. It’s just as well there's very good synergy between a healthy diet for humans and a healthy diet for our planet. To achieve sustainable diets, we need to do four main things. The first is decrease food waste, and I'm sure we're going to hear more about that soon, decrease energy intake, not by much, but every little bit is accumulative, to decrease intake of unhealthy food and drinks, whether we call those discretionary foods, ultra-processed foods or junk, whatever you want to call them, we need to eat less of them, and to increase the proportion of healthy plant-based foods in our diet.

**Amanda Lee:**

Now, that doesn't mean more breakfast cereals with lots of added sugar. We actually have very good evidence about what we need to do to achieve this. Globally, there's no shortage of targets and strategies, et cetera. But in Australia, we do have a current food and nutrition policy back here. But the main problem is that we're just not implementing the required evidence-based actions. For example, OECD countries are very good at encouraging populations to eat more of the unhealthy foods, but very few discourage consumption of unhealthy choices, here, the red bars. And especially by using regulatory mechanisms, which are by far the most effective. There's a lot of inaction in this area.

**Amanda Lee:**

The result is that in Australia, at least 15% of deaths and 8% of disability are attributable to dietary risks. Overall, less than 1% of us consume diets consistent with food based dietary guidelines. So, we're probably all on the webinar today. Yet following these recommendations would also produce at least 25% less greenhouse gas emissions than the current diet as well. Even the minimal change required to achieve recommendations is actually quite radical, but we could go further by adopting more vegetarian, Mediterranean, and other options, which were also modelled in the dietary guidelines work program. In this graph of minimal change, we need to eat more proportionally of the foods with green bars and less of those with red bars.

**Amanda Lee:**

You can see that the major problem we have is the need to decrease those unhealthy food and drinks, which provide over 35% of our total energy intake. This is even higher amongst our children or in low socioeconomic groups and in Aboriginal and Torres Strait Islander groups. To better balance nutrition and sustainability, we also need to focus on equity by achieving food security through these six A's that are listed here. The common barrier to healthy diets is the perception that healthy food is too expensive. Surprisingly, when we cost the current diet of a family of four per fortnight on the left and compare that with the cost of the recommended diet, a healthy diet is actually less expensive overall than the current diet, partly because we include alcohol, which provides 12% of our food budget on average.

**Amanda Lee:**

And also, a good example of great public health policy, healthy foods in Australia do not attract 10% GST. Importantly, our PhD student has shown that healthy diets are just not affordable for low-income groups. And in fact, when those groups choose the cheapest option of foods, a common coping budget strategy and use generic items, healthy diets actually become more expensive than current diets. Also, worryingly, 58% of our family food budget is spent on unhealthy options, incredible amount. And I think this really raises the question of who benefits from the status quo in Australia, and also suggests that urgent regulatory action is required.

**Amanda Lee:**

However, there's a bit of a sad history of good policy being undermined in Australia. An example followed the release of the draft dietary guidelines in 2011 when a very strange alliance of bedfellows joined a media campaign to oppose Australia becoming one of the first nations in the world to try to deliver healthy, equitable, and sustainable diets. Dr. Katherine Cullerton has looked at this more closely by mapping the nutrition policy network in Australia. Basically, these lines show who talks regularly to who. In this diagram, the red shapes down the bottom are the decision-makers in the food policy section, mainly politicians. Surrounded, as we'd expect, by the orange bureaucrats, while over here to the left, we have the pink nutritionists blindly talking to ourselves and occasionally sometimes to the blue NGO activists in the top group.

**Amanda Lee:**

But those that are best positioned to influence public health decision-making are from the food industry here shown in black. This network analysis clearly demonstrates the power and influence of the commercial determinants of health and sustainability in Australia. Combating this is going to require political and public will, and ideally a new comprehensive food and nutrition policy for Australia to guide collective action. The good news is though that transforming our food system to better deliver diets consistent with health sustainability and equity is possible as shown by several remote Aboriginal communities if they'd have successfully improved their food security. Thank you.

 **David Pembroke:**

Amanda, thank you very much and certainly plenty to discuss in that presentation. So, to our second presenter today, I'm very pleased to introduce Dr. Bradley Ridoutt. Dr. Ridoutt is a Principal Research Scientist with the CSIRO whose expertise is in lifecycle sustainability assessment in the agriculture and food sectors, which is used to address strategic challenges in relation to climate change, water scarcity, sustainable food systems and sustainable diets. His research is creating the main evidence base concerning the environmental impact of dietary habits in Australia. Dr. Ridoutt.

**Bradley Ridoutt:**

Thank you very much, David, and hello to everyone who's watching. I really appreciate the opportunity to share some reflections about what we've been learning about sustainable diets in Australia. I've just got the one slide to summarise a few thoughts. And the first one is that in Australia, I believe what we really need is Australian solutions. I know a lot of people refer to the global modelling studies and global solutions, global reference diets, EAT-Lancet diet and so forth, but we've got to remember food systems vary in different regions. Our food system is not the same as Singapore or India, or South Africa, or UK or wherever. We've got our own characteristics of our food system.

**Bradley Ridoutt:**

In addition, the environmental challenges, they're not uniform across the world. Just think of things like water resources and water scarcity. Some parts of Australia have so much water. And then of course you can contrast it with other areas that sometimes experience water scarcity. So, the local environmental resource availability must be taken into account. Also, food cultures differ. The way we eat in Australia is very diverse reflecting the diverse cultural background we have, but it's not necessarily the same as in other countries. And it's hard to characterise as a global diet. Public health nutrition challenges vary, that's a difference that we have peculiarities in Australia that are not the same as elsewhere.

**Bradley Ridoutt:**

The important sources of under-consumed nutrients here in Australia are not necessarily the same as elsewhere. And in any case, the intervention opportunities, they really exist within a local food system, either nationally or locally or within the organisations and farms that work within our country. And so, I really caution about the adoption of these global academic modelling study results and urge people to pay more attention to the evidence base that we have here in Australia, which in my personal opinion is as good or perhaps even better than is available in other countries anyway. So why don't we use it?

**Bradley Ridoutt:**

And from across our studies, my second point is we've looked at over 9,000 individual Australian adult diets coming from the Australian Health Survey. I know it's a few years old now, but it's still the most authoritative and nationally representative source of information about what Australians eat. We've looked at diets, their diet quality. We've looked at a range of environmental indicators. And the one thing that stands out that makes a difference between healthier diets that have lower environmental impacts and the poorer diets that have higher environmental impacts is this issue of discretionary food that Amanda mentioned.

**Bradley Ridoutt:**

Overwhelmingly, it is the number one issue. And as she said, it doesn't matter whether you call it energy dense nutrient poor foods, discretionary foods, indulgent foods, junk foods, whatever. One of the great things about the dietary guidelines is it does highlight these as a type of food that we should eat occasionally and in small amounts, not all the time and in large amounts. In addressing where we go from there, you've got to be aware of trade-offs between all the different objectives. We looked at diets in Australia that have lower greenhouse gas emissions. And the dairy industry was particularly interested to ask us, well, how do dairy products feature in those lower greenhouse gas emission diets?

**Bradley Ridoutt:**

And within that subpopulation, we found that those that were consuming the two and a half serves of dairy that's recommended in the dietary guidelines were almost all obtaining the recommended dietary intake of calcium. Those lower greenhouse gas emission diets which were low in dairy product intake achieved the recommended dietary intake of calcium only in about 5% of cases. You can see it becomes a complicated matter once you start saying “the core food groups, the healthy foods, eat more of this and less of that” because you could be doing more harm than good. And the potential for environmental gains by swapping the healthy foods in and out is modest according to our research anyway.

**Bradley Ridoutt:**

I would argue the focus on the discretionary food is the number one challenge. And also, if we're going to have healthy and sustainable diets, Australians need healthy and sustainable food products. And so, their food production system, there's so much potential for gains there, whether it's in resource use efficiency, lower greenhouse gas emissions across the board, that's where much of the focus should be rather than advising people to limit their choice of healthy food options. Thanks.

 **David Pembroke:**

Thank you very much, Dr. Ridoutt. But our next presenter is Mark Barthel. And Mark is special advisor to the Fight Food Waste CRC, where he leads the development of innovative food waste reduction and transformation projects. Earlier this year, Mark was appointed as the Chief Operating Officer at Stop Food Waste Australia, a new organisation that plans to halve food waste by 2030. Mark Barthel.

**Mark Barthel:**

As David says, we have a huge challenge in Australia in that we would like to hit the Australian government's target to halve food waste in the next 10 years. I want to talk about some of the challenges there and some of the opportunities and particularly focus on some of the innovation and some of the thinking coming out here and what we can learn from overseas as well. I wanted to start by saying that when we look at food systems and I'm focusing globally here to start with, we're really in the middle of a perfect storm. You can see from this graphic, we have significant increased demand for energy, food, and water by 2030. And that's against the backdrop of increasing climate risk of the food system.

**Mark Barthel:**

And quite frankly, from what I've seen here, Australia is becoming a bit of a poster child for climate risk to the food system. The number of droughts, floods, bush fires, and so on that are disrupting the food system here is quite extraordinary. And I also wanted to highlight, given the focus on health as well here, that with the growing population, a growing middle class with aspirations for a more varied diet, increasing levels of urbanisation, obviously we need to pull people out of poverty around the world as well that we are facing at the moment an estimated four trillion calorie gap between now and 2050. And we need to close a protein gap of anything up to 370 million tonnes of protein a year. So, we have some really significant challenges.

**Mark Barthel:**

And what I want to highlight in my presentation today is that a huge help in achieving those challenges is to reduce food loss and waste. It really is a triple win. We can save money for farmers. We can increase crop utilisation in agriculture and horticulture, and we can drive better efficiency in food businesses, and we can help households. It'll help feed more people, and it would alleviate pressure on water, land, and climate as Brad has just highlighted. It's very often quite hard to articulate or to visualise just the sheer significance of global food waste. And one of the ways in which we've done this is just to, I guess, characterise global food waste as a country in its own right. And if it was a country in its own right, then it would be a very significant consumer of global food supply by weight about 32%, nearly a third.

**Mark Barthel:**

It will be spending 1.8 trillion Australian dollars a year on food that then gets wasted. It's utilising 25% of all the water used in agriculture worldwide and 23% of all the fertiliser used on earth. And critically for health, it's also consuming one in four of all food calories available on the planet. From a kind of emissions and environmental impact perspective as well, food waste is the third largest carbon emitter in the world after the US and China. And it generates 8% of global greenhouse gas emissions. That's about 4.4 gigatons of CO2 equivalent emissions. And it's utilising a cropland area the size of China to grow food that then gets wasted. So, reflect on that in the Australian context, but the entire territorial land mass of Australia is only 82% of China's land mass. We're using an enormous amount of land, which includes land use change to produce food that then gets wasted.

**Mark Barthel:**

What does this mean in Australia? Well, this is actually from a to be published study. This is the National Food Waste Strategy Feasibility Study. It's been funded by Food Innovation Australia Limited. And what this shows you is the revised baseline for the national food waste situation in Australia. The first thing to say is that as the data's got better, the numbers are going up. We're now talking about 7.6 million tonnes of food wasted in Australia each year with an economic impact of around $25 billion and generating over 20 million tonnes of CO2 equivalent emissions. That's between four and 5% of Australia's national emissions inventory. This is significant.

**Mark Barthel:**

And the other thing I want to say here is that Australia's food waste profile is very unusual for an OECD country. Typically, we'd expect an OECD country's food waste to be very heavily concentrated towards the consumption end of the value chain. And yet in Australia, we find ourselves in a situation where close to, well, between a fifth and a quarter of food is lost or wasted in primary production. Nearly a fifth is wasted in processing and manufacturing, and then between around 3% in distribution, and then 7% in wholesale and retail. The consumption end is still quite high at 51% overall when you look at the amount of food that's wasted in households, restaurants, and in institutions like hospitals and universities.

**Mark Barthel:**

The other thing I want to say here is that when you start breaking down this national food waste baseline, there's a lot of nutrition lost here. So just one example, roughly a third of this 7.6 million tonnes of food waste each year is fresh produce with all that nutrition going to waste, all those vitamins, minerals, essential things to our diet going to waste each year. This is a really significant issue for the planet, for nutrition, and for the economy. I just wanted to touch on a few ways in which we're starting to address this, and this is actually a case study from the UK. But we are doing this now in Australia with Woolworths. We're actually walking the potato supply chain with Woolworths in Australia.

Mark Barthel:

But just to give you an idea of some of the things you find as you walk a food chain and you're looking for opportunities to make that food chain more efficient to reduce less waste. One of the things you can do is look at whether you're growing the right varieties, in this case, potatoes. And what we found here is that some varieties of potato can reduce food waste by up to 10%, just a simple change of a variety and looking at the kind of product specifications that come down from supermarkets and food service and hospitality organisations. Now this particular food chain, they had this crazy idea that the optimum circumference of a potato for consumption was 45 millimetres. We asked them why? It took them three months to find a product specification from 1978. It had no economic practise behind it, no consumer acceptability behind it.

Mark Barthel:

We said, let's change that. Just a 2% reduction in that optimum circumference of the potato led to a 5% increase in crop utilisation and that gave to the farmer over $1,800 additional income per hectare. We moved to trickle tape irrigation, that improved crop yield by 4%, reduced water use by 30% and reduced energy use by 10%. We looked at the refrigerated storage of those potatoes. We had 15 major refrigerated storage units around the UK in five different production zones. We moved them to the best in class. No increase or CapEx required to change technology, just better calibration, better maintenance. We saved a million kilowatt-hours of energy per 50,000 tonnes of potatoes. So overall by walking the chain like this, we were able to generate a saving for the potato supply chain of $1.2 million per 50,000 tonnes of potatoes.

**Mark Barthel:**

This is easy stuff. You're just looking at things through a slightly different lens when you do this. So, this is on the reduction angle in terms of food waste and improving efficiency and improving outcomes for everyone in the value chain. The other thing that I just want to focus on is the transformation element. We have a lot of surplus food in Australia. We're producing enough food for 75 million people when we have a population of just over 25. But according to the UN FAO statistics, we're wasting about 35% of all the food we produce. We are as a country one of the biggest culprits on food loss and waste. The only country that is anywhere close to us is North America or continent is North America.

**Mark Barthel:**

This is just a case study from Queensland where I live. A company called Natural Evolution, it emerged from a banana plantation. They had surplus bananas on the plantation. And they were looking at ways of converting those bananas into valuable products. They started off by dehydrating them and creating a fantastic flour, a banana flour. They moved into baking ingredients, gluten-free cake mixes, banana breads, vegan proteins. They moved into the health space, created prebiotic, probiotic gut health products, antioxidant ointments, resistant starches for use in industry. And in beauty, they used those surplus bananas to create moisturisers, skin cares and soaps. And this is against a backdrop of one in three bananas being wasted each year in Australia.

**Mark Barthel:**

What I've seen here that gives me hope is that incredible explosion of start-ups and innovation looking at how they can transform this surplus food into valuable ingredients and products from taking end of day bakery waste to brew beer, to taking on the flip side of that, the spent grain from brewing and creating low-glycaemic flours and healthy snacks. So, there are some phenomenal innovation going on in Australia, and we're really looking forward to working with the industry to really drive the scale of this change, reducing food waste, food insecurity, and really creating a situation where the food chain is much more resilient than perhaps it would otherwise be. And that's where I'll stop. Thank you.

 **David Pembroke:**

Thank you very much, Mark. A great presentation. But I might on indulgence start with a question, Mark, to you. Where is the greatest value, the greatest impact? Where can the greatest impact be had to rid Australia of this complacency around food? Where's the easiest things that can be done that can have the biggest impact?

**Mark Barthel:**

I think those whole chain walkthroughs are a phenomenal eye-opener. And doing this with Woollies, and we're just kicking off a project actually with Meat and Livestock Australia to look at the challenge in the red meat supply chain. It's a real eye-opener. Very often when you bring together all the different partners in a value chain like we've done elsewhere, they very often haven't met each other even. They don't understand the implications of what they're doing. If someone changes a quality standard in a retail supermarket, they very rarely get the chance to see what the impact that is on farm, what it does to crop utilisation, what it does to the farmer's income and resilience.

**Mark Barthel:**

I think perhaps following on from that when you've identified where those food waste hotspots are, it's having the good data to then go and act on it. So, changing varieties, looking at ways of changing quality standards, engaging consumers, all of this stuff really, really helps. And certainly, there are huge opportunities and I'm sure Ronni from OzHarvest will say to really scale up what we do to rescue what is a very large amount of food that would otherwise go to waste.

 **David Pembroke:**

Well, just even that number of one in three bananas are wasted in Australia, I just wonder how many people would know or understand that that much food is wasted. That's a staggering number to me, but it's time to feature the audience and indeed audience, thank you so much. There are plenty of questions that the panel now going to be asked. I will start with you, Amanda. And it's a question for you. Why is there such a low public understanding of what a healthy diet should include? Professor Lee.

**Amanda Lee:**

I guess it's like most answers to most questions, you need to chase the money. There's a lot of misinformation around what a healthy diet is. And sometimes I think it's almost like a new religion to have a particular diet that people pedal. Unfortunately, we do know from the last health survey that most people get their information about what constitutes a healthy diet from the internet and not from government sources. I find it quite a contrast when you look at how we've handled the COVID pandemic and there's been increasing reliance on science-based evidence pedalled by experts in the area. We're almost seeing the opposite in terms of diet. And then the other issue is that understanding, and action, are very different things. If we ask people how many fruits and vegetables do you eat a day? We know that most of us say two and five or answer appropriately.

**Amanda Lee:**

But whether we do it or not is another situation, because what we choose is really affected by our food environment and the availability and the inequitable advertising of products. It's completely undermining those healthy messages. It makes it very hard for people to act on the information they already know. So yes, we do need to better target social marketing campaigns, sophisticated social marketing campaigns. Like we had a wonderful one go for two and five some years ago. And we know from those results that I just talked about that it was successful in getting the message out there, but we do need to go more to try to change the environment so that that old age of making healthier choices, the easiest choices is really the option for people.

 **David Pembroke:**

You made the point though in your presentation though that there are plenty of people out there who want to challenge that information. So how might that be able to be addressed?

**Amanda Lee:**

I think we need to be more sophisticated in terms of framing. For example, we know when there was the gay marriage debate in Australia or wasn't until that was turned around and framed as marriage equality that there was public support and increased public will for that campaign. So how we frame these issues, I think is really very important. But one of the problems is that when I showed you that network analysis, up in the right-hand corner, I didn't mention that group due to lack of time, but that's the group I'm most envious about. It's the industry frontline, it's people that are employed in industry whose job it is to respond to public submissions to feed talking points to industry leaders.

**Amanda Lee:**

In public health nutrition, we have really a very small workforce and we lack capacity. If we want to respond to a government submission, we usually do that at two o'clock in the morning. I think we need more resources and definitely more capacity to develop an army to combat the misinformation that is out there.

 **David Pembroke:**

Okay. The next question again, Amanda, to you. Amanda, we know what needs to change to improve Australian diets. How can nutrition professionals better communicate with and impact the decision-makers in the food industry and in government to improve our food system? And is this likely to be most effective at a national, state or local level?

**Amanda Lee:**

I think the evidence shows we need to do it at all those levels. The work of Katherine Cullerton that I showed went on to talk about how we could develop advocacy models, particularly for organisations that have got quite limited resources, clearly things like having a policy entrepreneur, a high-profile person that is able to have traction for their messages, but to work in partnership with other organisations in collaboration. I'm so delighted that Brad and my presentation was very harmonious. So obviously building on those opportunities to develop more strategic partnerships, we know that if we work collaboratively, we will have more influence. And there's a lot of opportunity I think to work more effectively.

 **David Pembroke:**

Indeed. A question for you, Dr. Ridoutt, re the environmental gains of swapping core foods being modest, can you please talk a bit more about that in relation to meat. Eat less meat, save the planet seems to be a popular view. Is that misplaced?

**Bradley Ridoutt:**

Well, in our research, we don't look at theoretical diets where people only eat the way we come up with on a spreadsheet because we look at what real people eat in the real Australian community. And we look at those diets that tend to be characterised as being healthier using a diet quality score and those that have lower environmental impact. And when we look at that quadrant, as a general rule, they don't contain much in the way of fewer livestock products. They still contain a broad mix of plant-based and animal-based foods. And I think this is really a false dichotomy that people are trying to put on us for trying plant foods as being somehow healthy and good for the environment. Forget the fact that a lot of the discretionary foods that we eat are actually plant-based foods.

**Bradley Ridoutt:**

And I think Amanda also mentioned it's not breakfast cereal with sugar that we should be eating more of. But the other point is that when you try and address multiple environmental objectives at the same time, you find that some foods might have a higher climate impact, others have a lower climate impact. But then if you look at the water impacts, some that were high are now low, and some that were low are now high. When we look at demand for crop land, the equation swings around again. When we model diets to try and achieve healthiness as well as multiple environmental gains, we find that we can only push the envelope about 15% of the way, which is why I conclude that really the strong emphasis should be on the food production side of the equation because we know that there's so much variation in the environmental footprint from one farmer to another, from one region to another.

**Bradley Ridoutt:**

And this is once again, pointing to the fact that we don't need this top-down silver bullet solution. There is no top-down silver bullet solution. It's the bottom up from the grassroots, its improvements, which are localised, which are relevant to the environment that people are working in and farmers know these things, they just need to be supported and enabled. And that's where we'll see the gains.

 **David Pembroke:**

Thank you very much. Now, just a reminder, we'll be coming to Ronni Kahn from OzHarvest in about, five, four, six minutes. So, stay tuned for Ronni's contribution coming up. But in the meantime, another question this time for Mark Barthel. Mark, why is our food loss so high in Australia compared to other developed countries? Is it because of cosmetic standards or agricultural practises and crop choices?

**Mark Barthel:**

The short answer is probably all of the above. It's quite extraordinary here. I've been working tackling food waste since about 2004. I'm into year 16. And I think there's definitely a challenge around quality standards, customer value propositions in supermarkets. It's been interesting actually, one of the few positives of COVID has been that people have become more accepting of the wonky misshapen or small vege and fruit. Because the demand in the retail grocery sector for food went up about 35% as lockdown hit last year, obviously a very negative impact on hospitality and food service. And so, they relaxed their quality standards. In some cases, they moved to what we would call whole crop purchase regimes.

**Mark Barthel:**

And that to me is, in that particular kind of commercial arrangements, they're the holy grail for tackling food waste. If I can just take the produce as one example there, your grade A or your grade one is your loose and packaged produce in the aisle. Your grade two can go into pre-prepared meals used to top pizzas and so on. And your grade three, which is particularly unattractive can go into things like soups and sauces. But the key thing is you're using a lot more of it. And I would love to see the retail supermarkets do more about that and really reinforce what they're doing there. Woollies has its ‘odd bunch’ range, and it is proving very attractive to their customers. But it will be great to see more of that elsewhere as well.

**Mark Barthel:**

So that would be the first thing. I think there is a real challenge as well. There is systemic overproduction, I think in Australia. I've never quite seen it on the scale before. Everyone is trying to hit that perfect bell curve for a quality standard. And that means that either side of the bell curve, you've got some waste. There's some real opportunities there in agritech in particular here, what I see in Europe and North America, the application of agritech. And it is happening here, but not as fast as other markets, but they can have significant impacts on the amount of loss and waste on farm. I'm thinking about things like controlled traffic farming. We are controlling how a tractor operates across a field, how it provides inputs, provides water and irrigation, all of that sort of stuff.

**Mark Barthel:**

And variable rate application where you're combining it with ground sensors and satellite and aerial imagery - you can really, significantly improve the efficiency of farming and make sure that a vast majority more of the crop is heeding those requirements that are in the market. And I think on the consumer side of things, most of us, I think if we were really honest with ourselves, would say that when we throw away food, it's a largely unconscious behaviour. It's something we've always done. It's become an ingrained habit. So that is probably one of the most challenging things that we need to work on in the next few years. How do we change those behaviours? How do we create new social norms, where throwing away food is as bad as smoking or not wearing a seatbelt in a car?

**Mark Barthel:**

Now these are really kind of challenging things. The good news is that from the work we've done in the CRC, we've surveyed nearly five and a half thousand households across Australia. And the good news is that when they recognise they're throwing away food, they're highly motivated to do something about it. More than 70% of households say they are motivated to reduce their food waste. So really then it comes down to how do we make it easy for them? And that's where the whole food chain and particularly the retailers can help.

 **David Pembroke:**

Excellent. And what a challenge you have set yourself there with the 2030 target, but certainly behaviour that needs to change if indeed you are to achieve that target. So, the next question to Professor Lee, given consumption of discretionary foods is the number one challenge, surely we need more focus on food literacy and education, but I don't see a huge focus on education, especially for children to create positive habits as early as possible and empower them to become food advocates. What are the panel's thoughts on food education? We'll go through the panel before we come to Ronni Kahn. And I'll start with you, Professor Lee.

**Amanda Lee:**

Nutrition education is a part of the Australian health education system. It's combined more recently with sporting and activities, but most Australian school kids do study nutrition. However, there's no standards about what's actually taught during those periods. I'm often challenged by people that say, "Oh, what about the food pyramid? It's all wrong?" Well, it certainly is actually our central tenet of nutrition education is actually a plate not a pyramid. The pyramid is a very old-fashioned thing that's not been part of the Australian food culture for a while. I think we need to have some standards in nutrition education that really ensure that what's being taught is consistent with the best available science, because schoolteachers are members of the broader population that are exposed to misinformation on social media just like everybody else.

Amanda Lee:

I would like to see some standards put in and some bit of control about the components that are taught. But the most thing we want to do to encourage children to eat healthy foods is focused on the social and enjoyable aspects of food too. And so, programs that encourage growing food, sharing food, those cultural norms are probably very effective in appealing to the emotions of children. We know too that it takes children up to 10 times to try a new food before they accept it. So just being patient and being supportive is really important to help address all those fussy eaters as well. But as I said, I think most of the evidence is that it's the food environment that dictates choice rather than that individual knowledge base. And we need not to blame individuals for living in an environment where we're constantly encouraged to consume more junk food and everywhere we go, it's what's in our face.

Amanda Lee:

There are opportunities to create better products. For example, in Queensland, we tried to have healthy vending in all our hospitals, and there was a shortage of the types of foods that we could select that had long shelf life but were actually healthy. So many opportunities to create products that will appeal to people.

 **David Pembroke:**

Thank you very much, Professor Lee. Dr. Ridoutt, your thoughts on this issue of education.

**Bradley Ridoutt:**

Well, look, I'm not familiar at all with what is currently being taught in schools about nutrition. I could only echo what Amanda has just shared. Thanks.

 **David Pembroke:**

Okay. And Mark Barthel, any thoughts there around that question of education?

**Mark Barthel:**

I think what we've seen elsewhere is that raising the skills levels in households can deliver both sustainability, nutritional and food waste benefits. During the COVID pandemic in Australia, we've seen far more families cooking from scratch than we did before. They're really looking for inspiration and a better understanding of how to not just cook food, but how to prepare the right amount of food, how to store it properly. We've seen a really significant increase in people reaching out for that kind of education and inspiration to recipe websites, food magazine websites, and so on. I think I saw a figure from Minter Ellison that it's those sorts of websites are experiencing over 70% more traffic during COVID as people are looking for something different to cook the family, looking to experiment, they're looking to try new things.

**Mark Barthel:**

And part of that is really teaching the kids how to cook, what the nutritional value of food is and so on. So really important to do that.

 **David Pembroke:**

All right. Well, thank you very much, Mark Barthel for that answer. So now would be a good time to introduce Ronni Kahn from OzHarvest. Ronni Kahn AO is a social entrepreneur and founder of the food rescue charity, OzHarvest. Ronni has made it her business to disrupt the food waste landscape in Australia. Her mission is to fight food waste and feed hungry people. And that's supported by some of the world's finest chefs. Ronni is an officer of the Order of Australia and was named an Australian local hero of the year. Ronni, thank you so much for joining us today at the Eating for Our Health and Environment- Balancing Nutrition and Sustainability dialogue today. You've been working in food waste for nearly 20 years. Tell us what needs to change and what we can do.

**Ronni Kahn:**

Thank you so much, David. And before I begin, I would like to acknowledge that I meet you all on the land of the Gadigal people of the Eora nation. And I pay my deep respects to their elders past and present. When I first started OzHarvest, I really had no idea that food waste was a global issue or that it had such a damaging effect on the environment. I just knew that good food was going to waste, and that millions of people were hungry. And I thought that connecting the two would be a great idea. 17 years later through our food rescue operations, we've saved over 60,000 tonnes of food from ending up in landfill and we've delivered more than 175 million meals to those who need it most.

**Ronni Kahn:**

And in that time, we have also introduced vital education programs. So, recognising all that has been said now and understanding that youth and kids really need to understand the value of food and how to prepare it, how to look after it, and how to value it. We've created and are starting to teach around behavioural change. And through our advocacy work, we are reconnecting Australians to the value of food and we're driving change at all levels of society. Our work is strongly aligned to five of the United Nations' sustainable development goals and we're doing everything we can to achieve the national goal of halving food waste by 2030. What we know now, which I did not know then and so many others don't is that food waste actually feeds climate change even more, for example, than the aviation sector.

**Ronni Kahn:**

It is responsible for 8% of global greenhouse gases as food left to rot in landfill creates methane, which we know is 28 times more potent than carbon dioxide. The good news is that we can do something about it, and we need to start today. Tackling food waste has been identified as the third most impactful solution to curb climate change by Project Drawdown. There is no doubt that urgent action is required at all levels of society from farmers to government and business right through to all of us at home. But where do we start? I'd like to offer four key recommendations to drive change to halve food waste across Australia. Firstly, government action. We have the national food waste strategy, but we need to build the benefits of reducing food waste and the connection to emissions saved into Australia's climate policies and our international commitments.

Ronni Kahn:

Secondly, action to support farmers. We need to tackle the three million tonnes of food going to waste at farm level. Government support is desperately needed to fix broken supply chains and provide incentives to help farmers reduce waste. Businesses, and particularly food businesses need to sign up to Australia's food pact that's delivered by Mark's team and Stop Food Waste Australia. Business need to set targets and measure against them. And any business with surplus should be donating it to organisations like OzHarvest. And finally, but most importantly, because this is where change can start immediately, we need citizen action. Reducing food waste at home is the single most powerful thing each and every one of us can do to tackle the climate crisis. Three million tonnes of food waste come from our homes. That's more than from supermarkets.

Ronni Kahn:

It starts with getting into really good habits at home as Mark mentioned, and we have a new mantra, an easy mantra, look, buy, store, cook. Look what you already have in your kitchen, in your pantry, in your fridge before you go shopping. Buy only what you need. Store that food correctly and cook it all up and eat it before you go out and buy more. We are all part of the solution. There is enough food to feed everyone three times over. We just have to stop wasting it. Thank you, David.

 **David Pembroke:**

Well, Ronni, compelling, very clear action. And before we return to the audience questions, maybe just a question to you then. If you had a magic wand out of all of those things that you've just mentioned, what's the one thing that could happen? We say in the home, we say behaviour, Mark mentioned before, research five and a half thousand. Everyone wants to do better, but why isn't it happening? Why isn't it happening faster?

**Ronni Kahn:**

I think honestly, most people do not know that they could become climate action activists. It's the low hanging fruit in our own homes. And that's where we see behaviour change being so effective. That's why we've put programs into schools, so kids take this message back home. That's why we are so committed to driving education around how each and every one of us can shift just a teeny, little bit to make this massive effort and impact really. Everyone's frustrated. They don't know what they could do, just start at home.

 **David Pembroke:**

Excellent. All right. Great advice. And thank you, Ronni. And if you'd like to stick around, Ronni, for the balance of the panel discussion, if you feel that you would like to add to any of the answers that are given, please feel free to offer your views. And again, audience, thank you so much for the questions. I know the department's very grateful for the time you're spending with us this afternoon as part of this national dialogue and the questions coming through are just fantastic. So, the next question actually comes to you, Dr. Ridoutt, do you have some examples of changes that have, can be made in the food production sector to create a more sustainable food system?

**Bradley Ridoutt:**

Well, it's very diverse because each industry needs to develop their own solutions. And even though solutions depend on where they are and the characteristics of each farm, one of the things about farming in Australia is that we have such a large continent, and the farming practises differ so greatly from one part to another. That once again, solutions need to be localised. But just to talk about one thing that CSIRO has been involved in that is potentially going to have a massive impact on greenhouse gas emissions is this new algae feed additives that could be fed to dairy cattle and to livestock. And the results I've seen suggest that it could reduce the methane emissions by up to 80%.

**Bradley Ridoutt:**

There's new technologies that are on the horizon as well as many things that are just associated with good farming. And farming the right things in the right places, I guess, is a part of it as well. It's difficult to generalise because of the diversity and the different farming production practises. But the food waste, that's another one we've heard so much about already. And I guess part of the problem with food waste in Australia, which distinguishes us from other countries is just the great distances that food transported across Australia. I'm in Melbourne and we think of some fruits that we buy here in Melbourne are coming from two, three, 4,000 kilometres away. That doesn't make avoidance of food waste so easy without technology.

**Bradley Ridoutt:**

And hopefully there are technologies that can be adopted readily to avoid some of those losses as well as a bit more tolerance with what we buy in the supermarket, because I didn't even know an optimal potato was 45 millimetres in diameter, that even seems a bit small maybe. I'm not sure, but I don't mind whether they're big or small. It's not a matter for me. But obviously it was a matter for someone, but probably not to most people and just simple things. The opportunities are everywhere.

 **David Pembroke:**

It's so true though. Isn't it? Is either the outdated regulation or something that becomes a truism that is then passed down and it's just because it is. And walking the value chain, I think as Mark Barthel mentioned before is where some of those problems can be identified and changed and impacts had. All right. Thanks a lot for that, Dr. Ridoutt. We'll come to the next question. Thank you very much for fantastic and exciting presentation. Thank you panellists. I would like to ask Professor Amanda and Dr. Bradley, what are their thoughts about animal product alternatives, including lab grown meat. Since these products are often ultra-processed, do you agree that policies should consider them within the unhealthy food group and therefore not a solution for unhealthy and unsustainable diets? Professor Lee, we might start with you.

**Amanda Lee:**

Okay. On the slide that I showed that had the green and red bars, you might've noticed that one of the bars that said we should be eating 470% more of these foods was actually legumes. So even before we get to manufactured meat alternatives, I think there's a lot of opportunity to increase healthy plant-based foods. I’m saying that because I have a feeling that what's happening with these meat substitutes is exactly what happened... The dietary guidelines have always said avoid sugar. They've also in the past focused on avoiding saturated fat. And the food industry took the saturated fat message and produced things like very sweet, flavoured yoghourts that actually aren't a particularly healthy product.

**Amanda Lee:**

I think the same thing, it might risk happening here that there's selective identification of opportunities around messaging that I use for commercial benefit that may actually lead to unintended consequences in our food supply system. I would rather see a focus on traditional sources of healthy plant-based protein rather than looking at meat-based alternatives, which there's very little information available about the life cycle analysis of a lot of these products. A lot of them are made with additional salt and additional fat, which we don't want to see anyway. There's not much information available about water use. There's not much information available about the biodiversity costs of these products either. I think we need a lot more information before we see them as an acceptable alternative. I'm very interested in what Brad has got to say on this point.

 **David Pembroke:**

All right, well, we'll now hear from Brad.

**Bradley Ridoutt:**

Well, some of my thoughts are similar although I would caution about suggesting that all processed food is necessarily unhealthy. Of course, there is a correlation between a lot of processed food being made from refined cereals and added sugar and so forth that does make it unhealthy, but processed food can be healthy as well. And I guess it's a challenge to whether these new products can be demonstrated to actually contribute to a healthy diet, not detract from it. I just know that when we studied the role of dairy foods in a lower greenhouse gas emission diet, there's a group of diets which were associated with people who identified as dairy avoiders.

**Bradley Ridoutt:**

And the problem with dairy avoiders we found was that rarely do they make up for the avoided dairy with enough servings of dairy alternatives. And you're thinking about the soy milk or nut milk, oat milk, rice milk, all these sorts of things. So, people tend to avoid these dairy products and not getting enough of the alternatives and the alternatives don't offer equivalent nutrition. They may be fortified with calcium, but they don't contain all the rich matrix of nutrients that you get in whole foods. There is a danger, but we shouldn't exclude the possibility that these products can add to our food system in positive ways. It's just how do we safeguard against them achieving the opposite?

 **David Pembroke:**

To our next question, and this really goes to actually a point that was raised a moment ago by Dr. Ridoutt. And the question is, our challenge of, or opportunity with globalisation is the ability to send food anywhere in the world, maybe less so with COVID. Should Australian consumers be more aware of food miles to make informed choices. And Mark Barthel, I might throw that question to you to start with, should Australian consumers be more aware of the food miles that's involved with the fruit and vegetables and other foods that they're eating to make more informed choices?

**Mark Barthel:**

It's quite an unusual one because as Brad has already said, the tyranny of distance in Australia is quite staggering. And if you're even within Australia, if you're harvesting mangoes in Northern Queensland and shipping them down to Melbourne, then you're talking about three and a half thousand kilometres. I was going to say, typically, when you look at life cycle analysis, food miles are a fairly small proportion of the overall footprint of a product. They might be slightly larger here, really, it's around production and manufacturing systems very often that are the greatest cause of greenhouse gas emissions or water use in the overall food system. I'm pretty sure Brad used to sit on the Lifecycle Initiative Board at UN environment as I did. So, we're kind of used to batting these ideas and these arguments around a fair bit.

**Mark Barthel:**

And certainly maybe 10 years ago, food miles were a really serious thing until people started doing decent life cycle analysis of the issues. Now that's not to say that buying local and growing local is a bad thing at all. It's not. And very often gives you a diversity in the diet that you might not otherwise receive, but it's just... I guess the message there is that when we think about this from a life cycle perspective, food miles are not the only thing we need to be thinking about as consumers of food, because it can be a very small part of the overall footprint of a product. But I do want to emphasise that local growing, local sourcing, and local buying of produce can deliver things into your diet that are very valuable. You might have fruit and vegetables that are grown locally that you might not get in other parts of Australia, for example.

 **David Pembroke:**

Mark, thank you very much for that answer. To the next question. Is there demand for the products that are being created for products like bananas, excuse me, that would otherwise be dumped or are those products just expiring on shelves and ending up in landfills anyway? If there are more products on the market, would that be contributing to more waste? Who wants to take a run at that question?

**Mark Barthel:**

I'll start it off maybe and let others contribute. I think the first thing to say is the more products you sell, the more complexity you have. And you've got real challenges in being... We often call it intelligent demand and supply. And the more complexity you introduce into food systems, the more likely it is that you might end up with wastage or inefficiencies. This is a hugely complex system. And if you look at things like the disparities in timing in the food chain, now that adds to that complexity. I'll give you an example, probably the average farmer is thinking at least a year out about what they're going to be growing or which livestock they're going to be keeping. The average food manufacturer is going to be looking at it from a perspective of maybe a quarter to six months in advance of when they need something.

**Mark Barthel:**

Retail is probably looking at things on a weekly basis and a consumer's looking at it on a daily or weekly basis. We have disparities in the way people view what they need in terms of demand and supply forecasting that create some really significant challenges for the food system and no one yet, no one has corrected that. We often talk about the need for a food supply chain that's fit for the future. And what I mean by that is, fit means flexible, intelligent, and transparent. And there is a lack of transparency in the food system here as there is in other countries that creates a level of complexity and a level of wastage that might not otherwise be the case. And I guess I want to make a case here for collaboration, because when companies in a food chain collaborate, you get more transparency, you get more appreciation of the role of different actors in the value chain and how they can work together.

**Mark Barthel:**

That walking the chain exercise I talked about earlier, when we asked them what was the real benefit of coming together to walk the chain? And the answer they all gave was, "We improved our relationships with each other. We improved the level of collaboration. We trust each other more, and we're going to work together more than we did before." That is huge. That shift in culture, that ability to share information and data and to overcome some of those complexities is a huge step forward. And I would love to see more of that happening here than is currently the case. I guess what I'm saying is, yes, you look at the food products on our medium-sized supermarket shelf, you're talking about 45,000 plus products.

**Mark Barthel:**

And just imagine the complexity there. Simple things like a change in the weather can have a huge impact on the efficiency of the supply chain right from the production stage through to what the consumer wants to buy. You can imagine a weather forecast in the middle of the week saying, "It's going to be great. It's going to be sunny. Everyone should get their barbecues out." And then by Friday, it's pouring with rain. No one wants to buy salad stuff, no one particularly wants to buy burger burns or burgers, and the whole thing shifts. There is a phenomenal amount of complexity to cope with here. And I think we are starting to see improvements in managing that complexity in other parts of the world, but maybe not yet here. It would be great to see more collaboration in the food system from farm to fork to tackle some of these issues.

 **David Pembroke:**

Thank you, Mark, for that answer. But I might throw then to Professor Lee then in terms of this notion of collaboration, how best then can we see, as Mark Barthel has described where various elements of the industry have come together, perhaps with different viewpoints at some point in time, how can that be encouraged?

**Amanda Lee:**

I think Mark's right in his highlighting that such collaboration can lead to greater transparency. I think in terms of good public governance, anything that's going to encourage greater transparency will actually be part of the future policy platform in Australia and is to be commended. I think there's opportunities for partnership civics then beyond one sector. And particularly, I think there's opportunities to link government players, industry players, and non-government organisations and civil society better too. I'd like to see options to encourage broadening of such partnerships. And I think that's where we're going to get really active and engaged solutions.

**Amanda Lee:**

I think one of the things I mentioned in my presentation was our lack in Australia of a food and nutrition policy. And even the process of developing such a food and nutrition policy, I think in 2013, my team got a tender to scope and a new nutrition policy in Australia. And at that time, we had a national food plan, and they were to be complimentary. But what was really exciting about that early development work was it encouraged engagement. I think that one of the benefits in developing a new food and nutrition policy in Australia would be that it would provide a platform for engagement. The process is just as important as what's developed. But having an implementation plan that everyone can work on together collaboratively, to me, unless we have something like that going forward, it's going to be hard to drive real collaboration.

 **David Pembroke:**

To our next question. Is there an opportunity to have foods labelled promoted in a way that indicates how sustainably they are produced to allow consumers to be informed about choosing more sustainably produced products? Brad Ridoutt.

**Bradley Ridoutt:**

Well, I'd be all for that because I realised that when ordinary people walk into the supermarket, they've got no idea about the impacts or vague ideas about the impacts of one product versus another that they're choosing. But I'm also sober about this as well, because for more than a decade, they've been walking down this route in Europe. And to be honest, I don't think they've gotten very far. I recall probably seven or eight years ago, there was an Australian wine manufacturer that had their wine in Tesco supermarkets in the UK. And it had to have a carbon label on it because Tesco would set out the goal of putting carbon labels on every individual product. So, if you're going to buy a bottle of wine, you can choose a low carbon one. And this was designed to create momentum and motivation for all producers to manage down their emissions.

**Bradley Ridoutt:**

But I think the consumer insight came back that people bought it when it was on discount and most weren't even aware that the label was even there. The problem also is that the experts in nutrition that I work with and I interact with give me the impression that the literacy in understanding the current nutrition information panel is relatively low as it is. Now, I highly value the availability of that information because it enables you to do something if you're so inclined, but I'm not sure so many people are necessarily using it. And when we talk about environmental or sustainability information to put onto products, it's far more complicated than nutritional information because nutritional information, you have the nutritional information panel calculator. If you've got your recipe, you've got your panel. But with sustainability information, it's not the same for every bag of carrots.

**Bradley Ridoutt:**

It's not the same for every bunch of bananas because it's differing depending on exactly where they come from and what the grower was doing. And we've studied tomatoes going into the Sydney market, and their water footprint varied from five litres to over 50 litres. You got tenfold, in some cases 100-fold, variation from one farmer to another, which would require immense database and data calculation to support the provision of this information at an individual product level. And then as I said earlier, you've got some things that are higher on the climate, some things higher on the water and clear distinctions between foods overall are not always obvious, which is why I say the emphasis should be on enabling our industries and our individual farmers to each do their part in their own particular way.

**Bradley Ridoutt:**

As much as I'd love to be involved in developing a labelling program for environmental information or sustainability information on all food or grocery products, I'm not convinced that we're ever going to go that path.

 **David Pembroke:**

All right. Professor Lee.

**Amanda Lee:**

I think this is a really interesting question because Brad has talked about how environmental labelling might be more complicated than nutrition, but I think that there's a lot we can learn from our health star rating system in Australia. This is a process whereby highly selected nutrients are accorded different values and foods that voluntarily participate will get our health star rating, the higher supposedly the better. But what we know when we look at a holistic view of our food system is that such an approach is quite reductionist because those nutrients are highly selected. There's a lot of argy-bargy about what gets counted and what doesn't get counted. And they're not particularly valuable.

**Amanda Lee:**

I think we get a lot of anomalies, like until things were fixed recently, we would get a packet of potato crisps with five stars. Now they might've got five stars because they're a little bit lower in salt than the original option. I think it really shows here that what we need is a holistic measure of the whole food itself. And that only when we're able to incorporate factors such as the range of metrics, we would be able to provide something that was not... The nutrition information panel on the back of the pack's good. But I think what we're talking about here is front of pack - something that immediately says to a consumer in the marketplace, this one is better than another.

**Amanda Lee:**

The other thing is that in our health star style rating system, you can only compare across categories. You can only compare breakfast cereals with breakfast cereals, but what the population really needs is something that compares what foods should I buy? What should I eat today? And that needs to go across categories. These things really highlight the complexities of trying to reduce down to a single marketing indicator.

 **David Pembroke:**

Mark Barthel.

**Mark Barthel:**

Thanks David. So yes, Brad is right. I can remember when Tesco introduced their carbon labelling scheme and it was a nightmare, particularly in Europe where the product sourcing arrangements follow the sun. You might be sourcing your tomatoes from Spain one week and then Chile the next, and then South Africa the week after that, or the month after that. So incredibly difficult. I think France had a pretty good stab at it with their Grenelle II regulations, which basically were more multi-matrix. So, they were talking about what Brad was talking about. You had to have a carbon value on a product, but you also had an option to look at things like what was the water footprint? What was the nature conservation value of the product and things like that? It was more of a kind of balanced scorecard approach to labelling.

**Mark Barthel:**

But again, the fact that it was multi-metric introduced a whole new level of complexity, and it was very hard for the French government to get that through as a voluntary arrangement. And the European commission has been working, well, I think it's more than 10 years in now to product environmental footprinting methodologies, and that has similarly suffered from complexity. So, David Pembroke: it's a great aspiration to think about providing this sort of information to consumers at a very uniform level, but it's very, very complex. I do wonder whether some of the changes in the way information is stored on products might help. A lot of people complain about the fact that there's simply not enough space on a piece of food packaging to give the sort of information the consumer wants, but there are of course data bars and data matrices and QR codes and things like that that you can scan with your phone and get more information on a product on its provenance, on its properties and so on, on its attributes, which might help.

**Mark Barthel:**

It’s not uniform, but it is a way of giving consumers more information than they'd otherwise be used to. I'd also want to make a plug here. If we're going to talk about labelling, is there a way that we can improve the standardised approach to things like expiry dates? We know from our research that over half of Australian households are confused by the meaning of use by and best before. And that is a huge driver of food waste, particularly in short life perishable foods. But adding onto that, the ability to have a standardised way of telling consumers how best to store their product, whether it's suitable for home freezing, how to defrost it and use it safely. All these things would have an amazing impact on how people manage their food, how people value their food and on food waste itself.

**Mark Barthel:**

And this is a project we're looking to get off the ground in collaboration with the Department of Health and with Food Standards ANZ because we see the huge value in providing that information on pack in a way that consumers clearly understand and benefit from. In other countries where we've done this like the UK where we have standardised food labelling guidance around those sorts of topics, we've seen household food waste fall by a third as consumers better understand the meaning of expiry dates, better understand how to store their food and whether it's capable of being frozen or deep frosted. So that to me is, if you're going to think about labelling, don't just think about those environmental metrics. Think about what the consumer actually needs to do a good job with their food.

 **David Pembroke:**

Well, I think that that is the hot issue that has arrived. It's hard up against time. I think there's a lot to be done in that labelling space. That certainly as we were unpacking through that, there's obviously lots and lots and lots more conversation and discussion that needs to be had about that particular issue. Thank you very much to our panellists for their enthusiastic answers there. A comment that we have received, comment for Ronni, "Cannot agree more on the importance of education, the approach of simple to understand, implement guidance like your look, buy, store, cook is key. Nutrition, particularly when tied to sustainability has become so complicated noisy. People no longer know how to take individual action."

 **David Pembroke:**

And indeed, an earlier comment that was made as well was a big thank you to Ronni from someone who had worked with the disadvantaged people and said that you had done so much for providing food for people who otherwise would not have been fed. And that person who dialled in that particular comment was very grateful. And a big thank you to Ronni for the work there with OzHarvest. Now, we are hard up against time. A very big thank you to Professor Amanda Lee, Dr. Bradley Ridoutt, Mark Barthel, and Ronni Kahn for being with us this afternoon for this absolutely fascinating conversation. The third in our series of the UN National Food Summit Discussion Dialogues here in Australia.

 **David Pembroke:**

Now, although this webinar is now coming to a close, that doesn't mean the Food Systems Summit dialogues are over. In fact, far from it. And I'd now like to invite Fleur Downard to let you know other ways that you can engage in preparations for the summit. Fleur.

**Fleur Downard:**

Thank you, David. We encourage you to visit and upload your views and ideas for the Food Systems Summit using the department's Have Your Say page. We hope that you will also register for our next webinar in this series. Webinar four is called Australian Food Systems- Addressing Shared Challenges. This webinar will be held Wednesday, 9th of June at the same time of 2:00 to 3:30 PM Australian Eastern Standard Time. And the registration details will be available next week. Along with other information on the Department of Agriculture, Water and Environment's UN Food System Summit 2021 webpage.

 **David Pembroke:**

Thank you very much, Fleur. And again, a big thanks to Professor Amanda Lee, Dr. Bradley Ridoutt, Mark Barthel, and Ronni Kahn for their presentations and their contribution to the discussion today. Very valuable. Remember these dialogues are happening elsewhere both in Australia and around the world. And if you would like to engage further, please use the links that are sitting up on your screen now. Thanks again to all of you for your attendance and your questions, and until next week's dialogue, bye for now.