

View from the private sector: Trust and purpose

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ABSTRACT



Global agriculture is facing many dynamic trends and emerging issues that present both challenges and incredible opportunities for evolution and growth. Key issues such as food security, consumer influence, biosecurity, labour shortage, water utilisation, climate change, deforestation, people talent, sustainability, trust in science/business/technology and smooth trade flow make just a short list of major drivers that require consideration, proactive investment, and decisive action now from many stakeholders to ensure industry success in the long term. The urgency and importance of these trends are different by country, and many trends and issues connect and converge. Developed countries, like Australia, can play a pivotal role in evolving quickly with these trends and leveraging our experience and learnings appropriately to developing nations. I will focus on three key areas and share how the private sector is viewing these in both Australia and developing nations, share examples of how these are being addressed in various countries, and offer suggestions for management of these issues in the future. I will share examples of private–public collaboration that can help address these trends, and touch on the important responsibility of the private sector in embracing Corporate Social Responsibility. Smooth trade flow of agricultural produce is essential to the development of all nations and in meeting global food security challenges. Influences on trade flow are diverse, including political drivers, industry direction, regulatory structures, and food chain stakeholders. Collaboration and transparency between key stakeholders are essential in managing future emerging trends that will impact trade flow. Biosecurity issues continue to impact agricultural production. Recent examples, such as fall armyworm across Asia and the industry response to this, serve as a good case study to assess the importance of multi-stakeholder cross-country collaboration for rapid response to these issues. Technology investment, development and acceptance are essential in agriculture to address current issues and capture future opportunities from within the sector. Technology partnerships with a clear alignment of objectives and a transparent regulatory framework are essential to attract required investment.

It is a privilege to be invited to this event to speak on behalf of the private sector, and to speak to an audience of scientists, industry stakeholders and – most importantly – passionate agriculturalists.

The company I work for is new and you may not be familiar with the name, Corteva. It is only two years old, formed from the merger of three well known

This record has been prepared from a transcript and the slides of the presentation.

Grounded in SCIENCE

*To enrich the lives of those who produce and those who consume,
ensuring progress for generations to come.*



Figure 1. Corteva Agriscience statement of mission and purpose.

American agricultural companies – Du Pont, Dow and Pioneer. Following the merger they spun off three independent individual companies onto Wall Street, and one of those is Corteva Agriscience. This company has the agricultural people, the agricultural assets, the Intellectual Property and the R&D capabilities that came together in the merger. Today we have just over 22,000 people in most countries around the world, working specifically in agriculture. We invest just over US\$1.2 billion every year in research and development, and that is broken into three buckets: seed development, whether traditional breeding technologies, new breeding technologies, or trait and biotechnology development; the discovery, development, and commercialisation of new crop protection products; and digital platforms, which many companies like ours are involved in. Figure 1 shows our purpose statement.

I have been asked to talk about issues (Figure 2), many of which we have heard about this morning. Some people think agriculture is homogenous, but it is not: every single sector is different, and we all face different issues in different

How are current threats and emerging issues managed by agribusiness?

food security	water utilization	animal welfare
consumer influence	climate change	sustainability
biosecurity	deforestation	trust in science
labour shortage	smooth trade flow	trust in business
biodiversity	people talent	trust in technology

Figure 2. Issues noted and managed by agribusinesses.

markets, in different countries, although many of these are linked. I would prefer the image in Figure 2 to show a rainbow rather than storm clouds, because we really should be optimistic and excited about issues – they offer so many opportunities for investment. I hope some of the university students who are attending or watching the conference remotely will look at Figure 2 and think about how much we can do in the future in a really good way, acknowledging that will require great brains, good talent, and a lot of innovative thinking.

In relation to Figure 2, *labour shortage* is one of the biggest challenges we have in agriculture. Even in the most populated countries, like India, agriculture is short of people. I like to visit places like Japan, which to me is like the tip of the spear: they have old farmers, almost no immigration policy, and they are still trying to grow food. However, technology is responding, with automated machinery, new breeding techniques and so on, trying to adapt to the challenges they face. In Australia, technology enables relatively unskilled workers to harvest wheat using expensive equipment on farms, because the harvester is driven by satellites. Doing the job needs very few people. Although labour is a big issue, agriculture is making progress, and it needs to continue to do that, because labour availability is a big problem.

Now let's consider *people talent* (Figure 2), which is a big gap that I think is critically important for our industry. Solving problems of the agriculture industry needs lots of young, energetic, innovative and curious minds. While organisations like 'Picture You in Agriculture' are doing good work, we need to continue to encourage high school and university students into agriculture. It is a great industry to work in, and the challenges you can see in Figure 2 are fundamentally important to all of us.

I want to focus now on *trade flow*, *biosecurity*, and *trust in technology* (Figure 2). From a private sector perspective, these are opportunities: confidence, and then acceptance, and a good regulatory structure with a sustainable value capture will bring sustainable investment for solving these issues.

Smooth trade flow

Trade is a complicated and dynamic area and very important. Smooth trade needs multi-level coordination, from government level to grower level, to understand and manage eight trends that can be grouped under three headings:

- **Political:** trade barriers; protectionism; ideology
- **Food chain:** cross border rules/expectations; secondary regulators
- **Regulators:** MRL harmonisation; Codex; data sharing.

Political *trade barriers* are a familiar issue – sometimes real, sometimes contrived. *Protectionism* still happens, as do nationalistic behaviours. *Ideology* could alternatively be termed 'aspiration'. We are seeing trading blocs or countries starting to influence how other countries produce their food so as to have access to that marketplace. Europe is probably the best example of that; but where countries differ, farming practices and production need to be different, which is good for diversity. Other examples of ideology include attitudes to mulesing and animal welfare.

Looking at ideology from the perspective of sustainable investment, how long will it be before biodiversity, water use efficiency, and carbon emissions become trading principles? That time is probably not very far ahead, and we need to be ready for it. I am not saying those ideologies are a good thing or a bad thing, but we need to get ready because they are in the future. And thinking back to food security, how do developing countries keep pace with this rate of change? They are still working on food security, while we are thinking about farming practices to meet the aspirations of wealthy country blocs. That needs to be addressed.

Under the heading **Food chain**, from the private sector perspective the influence of *secondary regulators* has increased significantly in agriculture. It is part of the reason we have ‘consume’ on our purpose statement (Figure 1). Through the consolidation of supermarkets and food chains, the food chain now has a strong influence on how food is grown – not just within the country of origin but also in other countries, to be sold within that local market. It is challenging to understand customer need, because it is dynamic and changing quickly, and often it is the supermarkets and the food chains that are driving that customer need. Genetically modified (GM) produce has been affected, as have natural foods and organics, and even how we grow eggs – whether the hens are caged or free range. These are part of the increasing influence of secondary regulators.

Regulators – third heading above – are an area the private sector watches particularly closely. Regulation is very important in agriculture. In relation to food safety, environmental impact, it is critical for agriculture to be a trusted industry. One important example of the regulators in trade is maximum residue levels, MRLs, which give buyers and importers confidence that the food products they are buying have a safe level of product residue. That is very important for long-term investment, and it has been managed by Codex, the global database, for quite some time. However, this is starting to fall apart at the edges. Countries change their MRL limits, and they may be different to those of other countries.

In some cases countries are eliminating MRLs completely for specific products that are important in one geography and not in another. This is adding confusion and complexity for importing–exporting companies, and also causing a great deal of confusion for growers who want to have access to global markets. It is hard for them to keep pace and know exactly which product they can use, and safely, to make sure they do not lose valuable export opportunities.

An example of thinking ahead in this area has started up in New Zealand. In my opinion New Zealanders are very capable in agriculture. I think they are very good at branding, and at agricultural strategy. Figure 3 shows a new organisation, A Lighter Touch, which I think is an insight into the model of the future. It is very new, and I am not making a judgment on whether it will be successful. A Lighter Touch is a partnership between government and industry, with the vision statement ‘Agroecological crop production to meet future consumer demands’, and a range of organisations are involved. There is a heavy horticulture focus, along with research institutions and some others, including Corteva Agriscience.

We were one of the first private companies to join this partnership, and people ask why a company working with pesticides and GMs wants to be part of this

An example of proactive collaboration



Figure 3. A Lighter Touch – an organisation exemplifying proactive collaboration.

group. The reason is that it is fundamentally important for us to understand what the consumer will be like in 10 years' time, and this organisation is a think tank of people thinking about exactly what that looks like. It takes us 10 years to discover and commercialise a product, and it costs us a lot of money, so it is very important to us to have really long-term insights into future consumers.

The other thing that this group, I think, is doing well is they are not just thinking about what the consumer needs and wants in the future, and how the grower can actually implement that in New Zealand; they are also trying to design suitable regulatory structures. That is very important for investment from a private sector viewpoint. Not only: Is the customer need understood so the problem can be solved?; but also: Is there a good regulatory structure in place that we can trust, that gives us a pathway to actual investment, then commercialisation?

There are probably more of these types of organisation around the world, and I picked this one as a quick example of the way the private sector needs to think about how to deal with the complexity of trade and how to make long-term assumptions about what the consumer really is interested in.

Biosecurity

Biosecurity is very important and Australia does a good job on it, but we have heard already how challenging it is, especially with fast moving pests and diseases in monocultures. I fully agree that prevention is much better than cure, as other speakers have said, but sometimes we have to cure and sometimes we have to react. That is a fact, particularly with the way we trade products around the world.

Take fall armyworm for example, which spread into India in 2018, South East Asia in 2019, and Australia in 2020. Nowadays it is not so much a biosecurity problem; the big challenge now with fall armyworm (FAW) is its impacts. Particularly in Africa and South East Asia those farmers are very poor, often

self-sufficiency farmers. When their maize crops are damaged and destroyed it is very serious for them. Reaction to, and fixing, that problem needs to happen quickly, and that is why I want to use this example to show partnership and collaboration.

In 2019, government, industry, academia and private companies including Corteva Agriscience collaborated and partnered during a three-day workshop in Hyderabad (Figure 4), organised by USAID (US Agency for International Development). Participants came from Myanmar, Sri Lanka, Nepal, Bangladesh, Thailand, India, Ministries of Agriculture, universities, Crop Life, research institutes. The objectives were simple: first, to get experts together, talk about the problem, talk about the experience, build the farmer programs; and second (particularly important in these smallholder areas), put the outreach into place speedily so those small farmers understand exactly how to treat this problem as quickly as possible.

Some excellent technology has been enabled through this workshop, as well as research on FAW with existing chemistry and also natural chemistry and natural predators. The evolution continues into how we can manage this, and I think this story illustrates how we must remain very vigilant. There will always be another pest and disease, and when they become evident we need to react very quickly.

This workshop was a good example of cross-country, government, public, private sector, all coming together and quickly addressing a problem, and currently FAW numbers have dropped significantly through Asia. Those numbers will come and go, but we think part of that drop is because of that rapid response to the problem in 2019. It feels like a good news story at this point in time, but we do not want to call victory too early.

Leading the efforts on FAW management (India): Partnerships, collaboration, education



Figure 4. FAW management was tackled in a workshop in Hyderabad, India, in 2019.



Figure 5. Emerging technologies. Structure and broad support are required to drive investment confidence and consumer trust.

Trust in technology

Technology is fundamentally important to a company like Corteva Agriscience and many others in the private sector, whether they are in agricultural services or other fields. Some of the numerous types of technology are noted in Figure 5, and many of them are designed or in progress to address some of the concerns shown in Figure 2 – and they are making progress and being developed.

One challenge is how to have these adopted by users. That is one of the big barriers, and one of the biggest barriers to investment. Data ownership is a concern (just as we all have our own problems with data security with Google and Facebook). One of the largest challenges for digital platforms is ownership of farmers' data. They have a lot of data, and they need those data to help them make decisions, but there is a clear question about who owns those data, and farmers may ask: What am I giving away by bringing companies in to have a look at my farming history and some of my decisions?

Plant breeding techniques are among those emerging technologies. Corteva is a biotech company; we work with CRISPR-Cas, and it is a real challenge to get acceptance of these technologies. We know we could do great things with these technologies, but the challenge of acceptance is why the consumer is part of our mission statement and our purpose (see Figure 1). Growers are very quick to adopt new technology: if it is good for their farm and good for the environment they will use that product. Science-based regulators will also approve products for use, relatively quickly through their processes, but that is not good enough anymore. The secondary regulators and the consumers must also accept and adopt those technologies. Without those last two steps in the ladder, the first two, unfortunately, will not count. We have seen this and been frustrated by it repeatedly.

As a company we are spending as much time as we can with food companies, and we need to continue to do that as an industry, to try and educate, because when I go to a big retailer and speak about CRISPR-Cas, they have already been

THE CSR DILEMMA

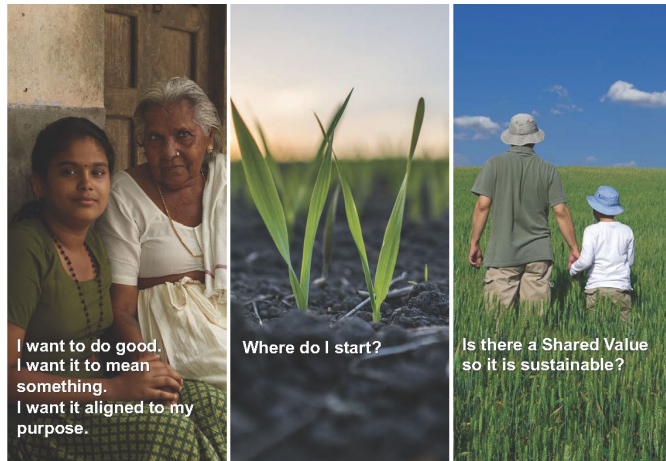


Figure 6.

spoken to by other companies that do not like those technologies. As one of the companies that practises a new technology, we are trailing behind other companies that have negative viewpoints. Influence and education are critically important.

Corporate social responsibility

Corporate social responsibility – CSR – is part of ‘trust’. I see a dilemma in a lot of corporate businesses in agriculture (Figure 6) in that want to get involved in more CSR activity but don't know where to start. My company's thinking is that it does not quite have the scale or the influence to really ‘make change’. Yet more and more we find that our employees want to get involved in causes. The CEO and the directors support that idea, and our shareholders also will invest in us because we ‘do good’. Our employees, especially our younger employees, are coming to us, asking: When can we do more volunteering; when can we go to foodbank again; when can we help out with the climate change initiative? Those types of activities are what drives them to be in the industry, in many ways.

‘Shared value’ is really important. For a corporation, the old view of shared value is it has to be symbiotic: whoever the company helps, that help needs to be good for them, and the company also wants something in return. And the symbiosis has to be lasting and sustainable, so that when the next CEO takes over, they continue it. In the most basic terms that means that if the company helps you, it will sell more product; that is a very crude symbiotic relationship.

I think the shared value model is changing. I think nowadays that when as corporations we become involved in some other organisations and initiatives, the shared value we get in return is our own employee traction and retention; and that effect is phenomenal. CSR now is not only about selling services, or selling adoption of products: instead, more involvement in CSR and good initiatives in agriculture actually attract more people to our industry and more people to our company. It becomes a differentiator for a company like ours, if we do it well.

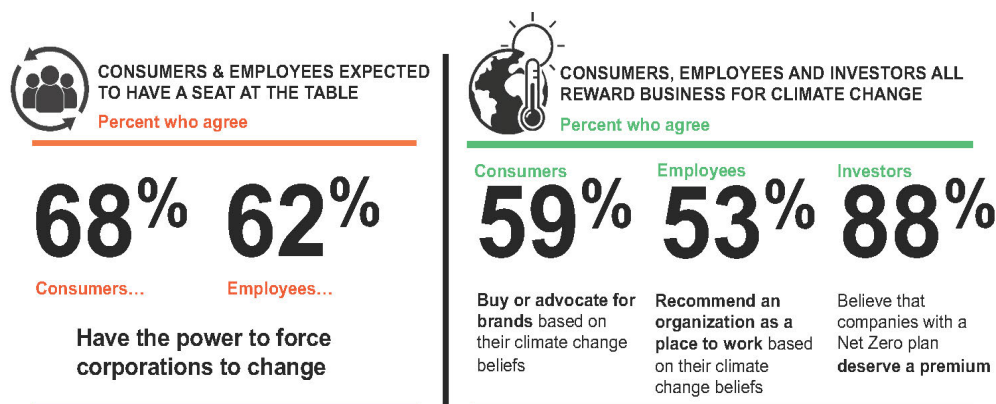


Figure 7. Key stakeholders are a growing influence.

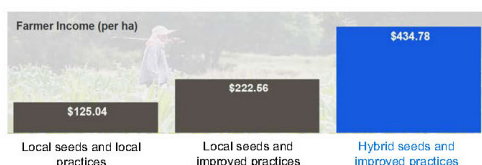
Source: 2021 Edelman Trust Barometer.

Figure 7 shows typical effects of ‘key stakeholders’ (though this example actually relates to climate change). The Edelman Trust Barometer gives rather negative messages about how trust is declining in the world in the major institutions, but it is very interesting reading. It highlights that consumers and employees are not passive stakeholders; they will not sit by and not vote, either by buying the food that they want to buy or by working with a company that they no longer believe in. As corporations we need to be fully alert and aware of that. Investors are mentioned at the right-hand side of Figure 7, showing it is very important that they also have a say in the corporation’s decisions.

Good CSR activities build trust within employees, and attract them and retain them, even in agriculture, which has great purpose in itself before you build

Partnership with PRISMA

Yield increase from hybrid seeds	2.3x
Total income increase from intervention	247%
No. of farmers with increased income	19,416
	35.6% women
Total Increased farmer income	\$1,678,000
Total Increased retail revenue	\$190,000



Shared Value - Hybrid corn seed sales grew 278%



Figure 8. An example of shared value: Corteva’s partnership with PRISMA.

other initiatives around that. We think it is also important to start to build this trust with consumers who, as I said above, are one of the biggest barriers to technology adoption for a company like ours. Figure 8 refers to a recent good Australian example of what some organisations in Australia do in other parts of the world. PRISMA is an organisation working with the Indonesians, looking at economic growth in rural Indonesia as farmers move from self-sufficiency to cash-crop farming. It is a classic case of shared value, where PRISMA, working with their teams, bring together the farmers who have a problem that needs a solution and a company like Corteva which can bring in suitable technology – in this case, very simple hybrid corn seed.

It does not stop there, though, because the face you see in the middle of the photo, in the white shirt, is one of our employees, and this is the extra shared value I talked about above. Our employees want to do more and more of this, all the time. Every time we show slides like this they want to know why are we not doing more of this interaction? How can we get involved in this? What can we do to make these benefits more prolific? It is very satisfying to see Australian organisations working with private companies like this example in developing nations, and it reinforces much of the work we are hearing about today.

It is encouraging to me that this conference has invited the private sector to be part of the talks because, as I mentioned, there can be a dilemma for companies – and especially their employees; we want to do good but do not know where to start. Corteva has been fortunate to interact with organisations like Picture You in Agriculture and others that help us in aspects that we think are important but would never be able to do ourselves. We have to find someone to help us support them in what they are doing.

Concluding remarks

I have covered a lot of topics. I was pleased to hear the consistent trend this morning around science-based calm thinking, and I think we are very fortunate to have our Regulator in Australia here. That is a role model to the region, watched very closely by countries and regions like Brazil and South East Asia. In science-based, calm, pragmatic decision-making around agriculture, Australia has much to be proud of. We also have plenty to be excited about: so much opportunity; we should be very optimistic. No doubt there are challenges, and they are complicated and dynamic, but investment is there. We need good people, young minds, and really curious innovators, to be involved.

In conclusion, from a private sector perspective, the identification of the opportunity is not the hard part; the hard part is the structure around that to capture value, and then building trust and acceptance further on.

When I look at some of the trends around the world, especially in trade, I am concerned that they are becoming a little bit more discrete, such as with the secondary regulators and the aspirational ideologies. They are hard to read, and hard to foresee, but their influence is growing. I think we need to be cautious of this, especially when there begins to be a separation between the consumer needs and the realities of scalable food production systems, especially when that starts to block good technology.

I know that has been talked about for 10 years and there is no quick solution, but we truly believe engaging at the ground level with consumers and food companies is a good place to start, and that is where Corteva will be putting in effort.

Currently based in Sydney, Australia, Rob Kaan is responsible for the strategic leadership and commercial activities for the Australia / New Zealand and Japan / Korea business units of Corteva Agriscience. Rob has worked in agricultural businesses since 1998. He spent the first part of his career in commercial roles in Sydney, Perth and regional locations such as Tamworth and Moree, NSW, before relocating to the United States in 2007 to lead global product portfolios. In 2009, Rob relocated to Kuala Lumpur, Malaysia, to lead the SE Asia business units before returning to the United States in 2011 to lead global portfolios for crop protection across global corn and soybean markets until 2016. In these roles Rob has had the opportunity to travel extensively and work with partners and farmers in many agricultural markets around the globe including South America, Asia, Europe, North America and ANZ. He has also worked closely with consultants such as McKinsey on 'Organization Design and Culture' projects both at Dow Chemical and in the creation of Corteva Agriscience. In 2016, Rob returned to Australia to lead local businesses through the Dow Du Pont merger and integration through to the final formation of Corteva Agriscience on June 1, 2019. Rob completed his Master of Business Administration at The University of Western Australia in Perth. He also holds a Bachelor of Science in Agriculture from The University of Sydney. Rob is married and has two children. His hobbies include surfing, skiing, golf, running, reading and guitar.

Q&A

Chair: Andrew Egan, Dept of Foreign Affairs and Trade

Panel: Rob Kaan

Q: Peter Wynn, Charles Sturt University

You said one of the main challenges is adoption, and yet adoption is very much related to extension, or the effectiveness of extension programs, and in many developing countries these are dominated by government organisations. What are the challenges working with and gaining access to farmers, either working around the governments or working with governments in developing countries?

A: Rob Kaan

For many corporations, it's knowing where to start. We obviously have access to farmers in all countries, because we deal directly with them, especially with seed production. But when it comes to looking to help out farmers in difficult areas, or needing production gates, we struggle a little bit with that because, you know, our historical view is very much on production, production, production; it's 'more yield' all the time, which in itself is a good benefit, but doesn't always meet the needs. So that's why I think the PRISMA example is good. We wouldn't have been drawn into that opportunity as a private sector company without being asked to be at the table. That would not have been a segment of the demographic customer that we would have spent time with naturally, as you could imagine. So there needs to be relationship between both sides, but I think identifying the opportunity is not always as obvious to the private sector as it is in the public sector, and that's where we can use a lot of help.

Q: Paul Fox, private consultant

We talk about trust in technology, and in this meeting we have heard about dealing with the sort of views the public might have about GMs. I think that to advise this debate on the nexus we are having, that the agrochemical industry would be better served not by a kind of amnesia, but by some global truth-telling about where the agrochemical industry has got things wrong. We acknowledge that there are products that are supremely important for agriculture, but things like the contamination of agrochemicals with dioxin have happened in the past, and I think they really have to be addressed and not washed under the carpet. They're important to this whole debate about trust.

A: Rob Kaan

I think Corteva had an opportunity four years ago, when the company first merged. You get a great opportunity when you create a new company because you can't shed the past but you can shed legacy, and you can think about a new company, and you can think about a new culture, and you think about moving forward. We went out around the world in 2017 and asked perhaps a thousand consumers around the world: Tell us what you think about the crop protection

This record was prepared from a transcript.

industry. It was a real wake-up call. Not a surprise, but to see the responses consolidated together was very confronting. It made the company think differently about trust and consumers and transparency.

I see most companies very dedicated to trying to do transparency well. I'm not going to say every problem is solved from the past, but in our corporate journey there is now a significant change in the way companies are looking. Recently some companies have just stopped selling products that don't align to that ideology. If we as a company go out and talk about how we want to be an IPM [integrated pest management] company, and we want to have products that do this and do that, and yet in our portfolio we have products that clearly contradict that, we will lose staff. Young people will not work for us.

Q: Dennis Blight, ANU

You mentioned very briefly the role of natural enemies. I wonder if you could just elaborate on that a little? And I should say that I was a former Chief Executive of CABI, where biological control was a mainstream activity on our part. And when I spoke on biological control people often responded about the cane toad, which was introduced as a biological control over the pest of sugarcane and is now encroaching even as far west as the Kimberley. So, could you talk a little bit more about natural enemies and compare and contrast that to chemical control?

A: Rob Kaan

Yes, natural predation is a very important tool, and obviously you've seen it well adopted in Australian cropping systems, especially in horticulture. One of the changes we've seen in our industry, when we look at early screenings of compounds, normally fungicides and insecticides, one of the earliest screenings we look at is how targeted is this product. You look at some key organisms, which might be parasitic wasps, or lady beetles, or spiders, or pollinators, to make very early identification of the characteristics of a product, because the attributes of that are so important to farmers.

Integrated pest management has been around for a long time. We promote IPM a lot. It's talked about in news, but it's not used as widely as it should and could be, and we're in one of the most developed agricultural markets in the world. There are some great companies out there doing really good things with natural predators, heavily supporting really good industries, and I just think that's going to be a continuation, and we'll see more and more crop protection products supporting the use of beneficial insects and predators.

Q: Vivienne Wells, ANU

You talked about the fall armyworm as less of a biosecurity issue and more of a problem for the farmers and the producers in that area, and their resilience, and their reliance on individual systems and their production. Earlier today we heard about prevention, in biosecurity, being helped by diversification in production systems. Should we be looking at multi-use land change practices to diversify income streams and increase farming resilience to biosecurity shocks?

A: Rob Kaan

That's a very good question. I'm not sure I'm the most qualified person in the room to answer it. I think the simple answer is yes, but it's very hard to make that happen because of economic factors. Farmers have to have the freedom to choose what works for their farm, while also thinking about biodiversity within their farm, which is important. I thought someone would call me out when I said fall armyworm is not a biosecurity risk anymore. In my opinion it's 'out of the bag' and now we're more in reaction than prevention. But I would say, yes, of course, the more biodiversity we have, the less spread we'll have of pests and diseases like that.

Q: Fiona Simson, National Farmers' Federation

Thanks so much, Rob. I really enjoyed your presentation and some of the reflections. I'm particularly interested in trust. The National Farmers' Federation has through its 2030 Roadmap engendered a conversation in Australia which is incredibly positive about agriculture, incredibly positive about our future, and has a whole lot of measurables that cascade down from the large headline hundred billion dollar value target that touch on all those sorts of things. When we talk to the private sector, though, and we do work with a number of corporate partners, sometimes it's difficult to get them to work together, because of their brand. I was really interested in the New Zealand example you gave about charting consumers and where we might go. How do farmers, and what role does the private sector play in terms of addressing some of those really big industry-wide issues that may or may not sit quite within their corporate responsibility?

A: Rob Kaan

That is difficult to answer. You mentioned that we don't collaborate very well, and I would agree with that. Some of that is for competitive reasons, but where we collaborate well is in a reactive space, which is the wrong place to work together. For example: This has already happened; now we need to get together, forget about our stripes, and try and solve the problem. But it's too late at that point.

I guess we know our position in the marketplace. We are not the best people to talk about trust. That actually comes from farmers, in our opinion. Farmers are the best advocates for what they do and the products they choose to use, and how important they are.

I think the only way is wider collaboration, and that is why The Lighter Touch organisation caught my eye. Because it's really broad, it takes away the competition of lots of different industry groups sharing ideas and being open about what the future looks like. We need a platform. Up to now, I haven't heard of one in Australia where the private sector and the public sector work together on trust.

But I would agree with you that companies are trying to work one-on-one, whether it's the animal health guys trying to work on animal things, or the crop guys working on genetic modification and the IT people working on big data and

data privacy. There's no collaboration between those different topics, but they are all unfortunately linked together by a general lack of trust in some of those technologies.

Someone talked about CRISPR before. We have a great project with a partner in Japan, working with a university, with High GABA [gamma-aminobutyric acid] tomatoes [genome-edited]. As someone mentioned before I think, the more the public research gets involved in biotech the better. In Japan they don't really like biotech or GM at all; they are very close to their food; so trying to launch a High GABA tomato in Japan is difficult. And I think the strategy has been very cool, and it will be an interesting case study to look back on, say, two years down the track, because they are essentially giving away tomato seeds via a small hardware warehouse. A lot of Japanese grow vegetables in their homes, and they're handing out free samples of this product so that the consumer goes home, grows the tomato; they are not being tricked; they are very open about what it is; but the consumer is at home growing the vegetable, consuming the vegetable, and – you would like to think – with time, actually trusting the technology. It is a very different way to the way we have launched biotech products in the past. We might refer back on it in a year's time and see if it was successful, but I think it is a really interesting way of building trust with the consumer; one that I have not seen attempted before.

Chair: Now just three quick questions, because we have limited time.

Q: Derek Baker, University of New England Centre for Agribusiness

I want to also ask you a question about trust. I'm old enough to remember Soviet Union–USA intercontinental ballistic missile negotiations where agreements would be reached and they would say: Yes, we trust, but we'll verify. Now, I've done a lot of research work over the years on supply chains, particularly in developing countries, involving smallholders, and the more I looked for trust, the less I found it. When you are talking about investing in trust, are we really investing in verification, or are we really investing in trust?

Q: Peter Horne, ACIAR

I am interested in corporate social responsibility. It has a bit of a chequered history: sometimes it has been implemented well, often implemented through a separate part of the company which is just delivering on a social licence to operate. Globally, more companies are seeing that their commercial viability depends upon the commercial viability of smallholders. Do you see a different pathway for CSR in future?

Q: Tanya Skinner, ANU

I am very early in my research career, and I am seeing a gap between fundamental and applied research. There seems to be a big hurdle between very fundamental research like mine, and then getting my research out into field trials, and beyond that the pathways to commercialisation seem quite clouded. I wonder if there's any incentive for the private sector to invest in fundamental research, because obviously that's the pathway to applied technologies? And if there's not, what we can do about that? What sort of collaborations could we be

trying to form so that we are doing research that is a bit more appealing to the private sector?

A: Rob Kaan

I'll answer those in reverse, because the last is freshest in my mind. It's a difficult question to answer because it really depends on the type of research, but I would say, and I'm going to take this from our industry's perspective, that there is no way we can satisfy the needs of what we would like to do in the future through our own discovery and investment pipelines. It's just too limited. So more and more we are looking for early-stage technology to get involved in, and I know every other company in agriculture is doing the same thing, because we take quite a narrow view, to be quite specific on our investments for a return on investment perspective. There are some great seed companies, and The University of Sydney is doing good work trying to point early innovators towards private companies that might be interested in the technology you have. We are swamped at the moment, as no one would be surprised, by biological and natural products. Everyone wants to get into those products, and everyone's got a great idea, and everyone's a bit short on capital and doesn't have a path forward or a distribution network like we have. There are a lot of people coming forward with great ideas, and I would assume that most private companies who have an aligned strategy or a market in what your technology is, would have open ears.

CSR. In my 24 years in the industry, I have not seen any other company where there is such an interest in CSR across all employees. In the old days there was just a statement on the front page of the annual shareholder document; no one really believed it; there were very few people in the organisation who were involved; and that's where it stopped. But I can clearly say now, we have multiple depths of employees, more at lower levels than at higher levels, pushing and wanting to get involved in more and more CSR activities. I think shared value is important. I think it needs to have some sustainability to it. But as I've experienced over probably the last four years, there's a real change in people wanting to get involved. The problem, as I said, is that people don't know where to start. That's the real challenge that I see in corporations at the moment.

Validation versus verification. It's an interesting point. We are the worst people at defending issues because we cite data because we're scientists. We are trying to verify, which is your point, all the time, whereas usually what is needed is an emotive discussion instead. We haven't solved that problem. We are not good at it. I think we are aware that we need to change the direction of the conversation, but I would say we are always verifying, trying to prove what we are doing is good and that we have the data to show that what we are doing is good. That actually doesn't change a lot of mindsets, unfortunately. That has been our experience.

Chair: Thank you, everyone.