~~Unc~~Corrected transcript

2013/14 Annual Review of New Zealand Pastoral Agriculture Research Institute Ltd (AgResearch)

Education and Science Committee

18 ~~February~~ March 2015

Members

Dr Jian Yang (Chairperson)
Paul Foster-Bell (Deputy Chairperson)
Steffan Browning
Dr David Clark
Hon Judith Collins
Hon David Cunliffe
Hon Paul Goldsmith
Melissa Lee
Tracey Martin
Jenny Salesa
Hon Maurice Williamson

Witnesses

Sam Robinson, Chairman
Dr Tom Richardson, Chief Executive Officer
David Godwin, Finance and Business Performance Director

[FTR start time: 10:20:20]

Yang — Well, welcome, gentlemen. Thank you for coming to the committee. I'd like you to know we are going to record and transcribe the hearing. Now, what we do is we'll ask all members to introduce themselves, and then you have the floor. [*Introductions*] OK, so you can introduce yourselves, and also maybe your officials if you need to.

Robinson — Good morning, members of the committee. Sam Robinson's my name. I'm the chairman of AgResearch. My day job is a farmer in Hawke's Bay. Dr Tom Richardson's the chief executive of AgResearch. He has a full-time job running that business, and some. And David Godwin, who is the finance and business programme director—otherwise known as the CFO. So we're here to present to you. And then advisers: we've got Poppy Haynes, I think, from the Minister's office—yes? Eileen Basher from the MBIE, Oliver Boyes from MBIE, and that's, I think, all I'm meant to introduce.

Yang — OK. Great. Thank you very much. You may have—I mean, you have a few minutes to introduce the institution, and then we have questions for you.

Robinson — Thank you, Chairman. Well, I've introduced my colleagues, and, of course, we're here basically—fundamentally—to present the annual report, which has been tabled and circulated. I don't know whether you've got a copy of our highlights document, but—that's good, because I think that's not a statutory

document, but it does—draws attention to the impacts that AgResearch does create for the economy. And some examples in there: the clover root weevil, which has, you know, worked its way from the north all the way down to the south, and we had a big blitz on that in Southland last year; black beetle, which is a growing concern in the northern parts of New Zealand, particularly in the dairy pastures with the warmer climates; Forage Value Index, which is going to be important as farmers make selections as to what grasses to use to improve their productivity; sheep milking, a growing—something I'm quite excited about—talk about that if you want to; and wool running shoes, believe it or not.

Sheep milking is at a very early stage in NZ http://www.stuff.co.nz/business/farming/sheep/66378173/sheep-milk-products-poised-to-take-off , and with some exciting beginnings, AgResearch has some R & D money in this space ($5.7 million over 6 years). Exciting yes, but thus far, not a significant area of achievement for AgResearch.

But the important thing about all these examples is that they get reflected through around about 24,000, 25,000 SMEs, which are otherwise known as farms. So when we make a science breakthrough which becomes some sort of product or system or process, that gets multiplied up by 24,000 farms— 12,000 dairy, 12,000 sheep and beef. And so the economic impact is really quite quick and quite strong. I mean—and obviously quite important to the New Zealand economy. So AgResearch is going to be an important enabler for the economic growth agenda, which is currently running, of course.

In comparison with agricultural research pre CRIs and still diminishing, AgResearch has minimal impact in the R & D extension area. The pasture pests, sheep genetics and forage improvement areas are notable exceptions, but to state that the technology flows down through 24,000 SMEs is simply delusional.

The year in question, 2014—and that ongoing growing research revenue is a challenge for us. And this—the year we're reporting on, 2014, we did lose some Government investment revenue through the contestable funding process. But we did manage to mitigate that to a certain extent with tight cost control, and we've finished the year with a net profit after tax of $2 million versus a budget of $4.3. Our overall balance sheet remains very strong, with around about $55.8 million in the cash reserves on balance date, because during the year we sold three of our assets: Wallaceville, Flock House, and Kaitoke, up just north of Wellington.

What I'd like to do, Chairman, is just spend a wee bit of time going back to the CRI Taskforce, which was chaired by Sir Neville Jordan and reported in February 2010. It was quite a sort of a turning point for the CRIs in general, and AgResearch specifically. And in that report, which—the role of CRIs is clarified, and essentially—well, as an aside: amongst other things, it required us to be financially viable, rather than financially profitable. And the famous strapline that

is embedded in the text there is that the owners would rather see $100 million worth of benefit in the sector than a $1 million dividend.

This conclusion is hardly revolutionary, it is common sense, and any CRI CEO and or Board of Directors would or should have known this anyway. Any R & D spend isn't worthwhile unless there is some return on that investment. The primary industries clearly need on farm and or food safety and quality enhancements to increase revenue.

The benefit to the sector was the main aim of MAG Research Division, and the DSIR pre formation of the CRIs. For a CRI Chair to think that the riding instructions were clarified only by the "Jordan" report is strange indeed.

You know, that's not to say that we don't need to continue to run a sound business, but our role is principally doing science and creating impacts rather than generating cash per se, such as an SOE might do.

But viability, of course, extends beyond financial issues, and when AgResearch was created in 1992 it was an amalgam of two Government departments—the DSIR and MAF—spread across five campuses and 13 farms. And that wasn't a good—you know, to run that was difficult. For the first 20 years of our history our scientists did continue to do excellent science in those circumstances—in those circumstances then, and even more so now, clearly inadequate for the modern sort of science approach.
Other CRIs have changed their architecture considerably, but AgResearch has remained essentially the same for the last 20 years, with the exception of the closure of Wallaceville. And this has led to quite a significant underutilisation of our infrastructure, which has obviously—provides a drag on overheads and makes that profitability or financial viability more difficult to attain. And if you had a clean sheet of paper, you wouldn't have those four campuses and 13 farms—but more about that in a minute.

This discourse about how inconvenient the old geographical configuration of the research establishments (Ministry of Agriculture – MAF, and the Dept of Scientific & Industrial Research – DSIR), is irrelevant. The structure then wasn't a problem at all, and the organisations were efficient, productive, and effective in transferring technology to the primary sector. For meaningful R & D to be done for the primary sector, the availability of a number of farms provided good capability for animal breeding and experimentation which was a major strength in producing understanding and technology for transfer into the primary sector.

This is a "the old system was very bad and didn't work, so we have to change it" explanation, and is simply not true. The previous geographical situation was a strength, the real problem now is the lack of (and diminishing) funding in the new environment, and the continuing loss of quality research staff in many disciplines. In 1992 at the initiation of the

CRIs, AgResearch had about 1,100 staff, purchased MIRINZ (Meat Research) in 1999 with 90 staff, and Canesis (Wool Research) with about 120 staff in 2005. Now with less than 750 staff and the indications that this will diminish further in this and the next financial years. Staff numbers are now therefore less than 60% of the initial total + additions.

Thus the number and spread of facilities is indeed in excess of requirements, and has been for some time. However this didn't stop AgResearch building very high spec laboratories and facilities at Invermay (their most modern building) at a total cost of $18 million in 2008, which will accommodate 100+ people. At the time the new building wasn't really required, but AgResearch now wants to walk away from this facility, and grass drying and soil analyses (dirty chemistry) will be undertaken in PC2 class laboratories.

And in the meantime, the landscape in which science operates and develops, both in New Zealand and, particularly, globally, has changed into one of collaboration and co-location

Science has always been about collaboration, co-location isn't necessarily relevant – see comments re international cooperation later.

with other like-minded organisations, and we want to be ahead of the curve on it. We're behind at the moment, and we want to get ahead of that. So to achieve our core purpose and to optimise the talent that we've got within AgResearch, we've got to work collaboratively with other science, education, research institutions, as well as our end users. So the plans, which are well known to you, and known as Future Footprint, reflect current international best practice: to allow science to be delivered to end users effectively and efficiently through these hubs and clusters.

This is pure meaningless managerial "spin", as soon as comment is made about "current international best practice" be very suspicious!

The two largest of these hubs will be located at Palmerston North, at our Grasslands campus, and at Lincoln, where we've— coincidentally—we've got two agricultural universities and other CRIs and private research businesses, as well as end users.

It's encouraging to us that we're picking up widespread [*Inaudible* **10:27:11**] support from industry, and the momentum in that is building. Ruakura, Grasslands, and Lincoln are receiving—

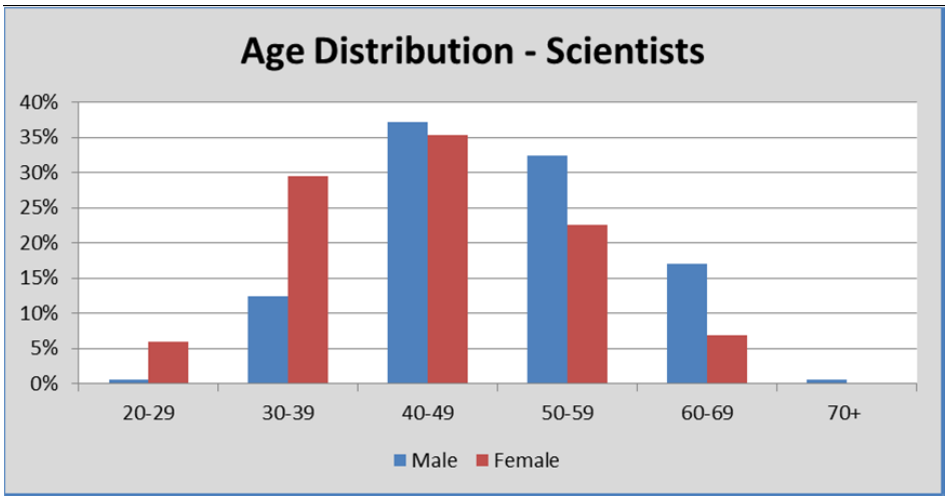
Ask the staff (not the managers) about the veracity of this comment. Industry support is weak at best

and Dr Richardson can elaborate more if you'd like—more inquiry from science and agribusiness for space at these campuses than we've had for a considerable period of time. In terms of recruiting, we are attracting new talent from within New Zealand and internationally as a result of our plans, and that's encouraging.

Attracting talent as a result of our plans? Again this is "spin", the best scientists are attracted mostly to other leading scientists, and their track record, not new buildings. Science is an international business built on scientific excellence, not on managerial theory.

And because of the demographics of our science employees, we've got a bubble of retirements coming up in the next 10 or 15 years,

A lot is made in various AgResearch utterances about the "bubble of retirements" and "the hole in the age distribution" see later, but this simply isn't true. The figure below from the AgResearch Annual report June 2014 shows the distribution. Looks pretty close to a normal distribution "bell curve".



and we're going to be doing some extensive recruitment to replace those retiring scientists. It's a fact that 60 to 70 percent of our recruits come from offshore; we're just not producing the relevant science graduates within in New Zealand, and so we're in the global market, and we need to be competitive, relevant, and approachable for these scientists to want to come and work and live in New Zealand.

We are aware of the risks associated with this project, and very mindful of those risks. We're also very mindful of the effects of our plans on our staff—the most important asset we've got—and the requests for some of those staff to relocate along with them and their families in 2017. And we're doing all we can to minimise the impact of those scientists and on their families.

All this talk about how important staff are, the most important asset! The staff morale at AgResearch at Ruakura, Palmerston North and Invermay (Mosgiel) is very poor indeed – see later.

Just talking about scientists, I just want to turn to a couple of science—

significant breakthroughs is the wrong word, but significant achievements in the year, if I could, just because science is the heart of our business. In conjunction with the University of Auckland, in a collaborative project, some of our guys increased their understanding of *Yersinia*, which is a bacteria which is able to be applied towards killing pests in pastures and crops. That was reported in a science journal called *Nature*, which is an international journal, which those of you in the room would understand is almost the Holy Grail of where you get stuff published. So that's a great achievement—the first of our papers which is published in *Nature*. And
coincidentally, also, we had another paper published in *Nature*. A team from AgResearch working with a team from the University of Tasmania—understanding grass growth in increasing carbon dioxide concentration in the atmosphere, which is obviously part of the global warming. As well as that, we've got ongoing work with the endophyte, which New Zealand is world leading in.

Publishing research work in *Nature* is indeed prestigious. These papers are not the first AgResearch papers in Nature and there have been other publications in other prestigious journals such as *Science* and others.

What the Select Committee wasn't told was that only one of three the co-authors of the paper on *Yersinia* (two others were from Australian Universities) is still in AgResearch's employ. One, the manager of AgResearch's Structural Biology Laboratory at Auckland University has been made redundant, and the other who won an Auckland University prize for his PhD thesis has had no support from the CRI since completing his degree. Surely the recruitment of a PhD candidate who took an idea to a paper in *Nature* in the course of his degree in a critically relevant research area should have been employed at any cost by any scientifically innovative management?

Further, the research for the second paper was undertaken in Australia, has two Australian authors and one AgResearch author.

Perhaps the most important principle established by the two *Nature* papers, plus a couple of other papers in Nature and Science (attached) is that the best scientists cooperate internationally without the need for managerially imposed "hubs". High quality scientists become nationally and internationally and much of the best science published in prestigious science journals is achieved without artificial imposition of putative science solutions, such as the FFP.

You could say that the sort of cooperation / collaboration evidenced above is the working of a "virtual hub".

So to summarise, Chairman, AgResearch is leading the creation of science, education, and agribusiness hubs and clusters so that we, AgResearch, and the wider innovation sector can do better science, more effective science,

There is no certainty that the relocation and rebuilding plans will result in any improved

science or output. In fact with the staff losses already (a further 48+ staff have gone either by resignation or redundancy since June 20th 2014) and envisaged in the future the loss of capability and experience will be significant.

more efficient science, better for the investors in science—being the taxpayer, the levy payers, and private sector. And then that science is going to get taken out and applied on these 25,000 SMEs I talked about—the farms. We are looking for new ways to work collaboratively across science to deliver value to New Zealand and the country's economy.

The AgResearch board is totally committed to this project, and thank you for giving me the chance to introduce it, sir.

Yang OK, gentlemen, do you have anything to add?

Unidentified No, I'm fine, thanks.

Yang OK, then I have a question, and then David Clark—David Clark's your friend now, I guess. Now the CRI core funding—I'm just wondering whether you are able to elaborate on that. You're using CRI core funding to help build scientific capability.

Robinson Can I just talk about the impacts on that before we move to capability because—I mean, you mention that core funding, which is, again, is a recommendation from the CRI Taskforce. And that's around about 25 percent of our income comes in from, I use the word—I shouldn't; I get my hands slapped—bulk funding. Like in schools. And, obviously, with a lot of accountabilities and requirements to report, that is ours to use to achieve our core purpose.

The "Jordan" Report to which Mr Robinson refers suggested that bulk funding should be significant and that the competitive funding requirements should be reduced. No need to apologise about the 25% bulk funding. It is pretty insignificant and should be much higher to allow CRIs to operate more effectively.

And the board has looked on that as a strategic investment, and I'm not answering your question directly but I think it's interesting that last year we did we had a strong strategic look at our business and we decided where the growth opportunities were, and we've used—we've created three projects, taking $1 million each to seed these projects. One in high-value foods, one in food safety, and one in farm systems, with special reference to the—that nexus between production and environmental effects. And so we're using this as seed capital, if you like, to grow where we see strategic value for New Zealand and the economy. But in terms of retention and recruiting of capability, I'll hand over to Dr Richardson.

Richardson Perhaps a quick couple of comments. The tremendous value of core funding is the flexibility and the ability to move quickly. So the—I guess the year in question, the prime example of that would be the clover root weevil. Along about this time in 2014 there was an unexpected outbreak of clover root weevil, which just destroys clover in paddocks, which is a critical part

of the paddock ecosystem, down in Southland-Otago. So our scientists, working with the ministry and the Dairy NZ and Beef and Lamb, were able to mobilise resources quickly by using AgResearch core funding to create about $52 million worth of benefit to the farmers in Southland-Otago, because we could move quickly with core funding.

I think the other thing we're trying to do with core funding is grow the business investment in R and D in New Zealand. As we know, compared to most other comparators we would like to compare to, we're quite low. So the three initiatives that Sam spoke to a moment ago around high-value food, food safety, and future farm systems—just on a year ago we invested a million dollars in each of those areas to pull AgResearch and wider teams from other collaborators together to think about what the future of these areas looked like. And our expectation was that within a year or two we would start to interest businesses in investing alongside of us in those areas. But as the teams went out and started talking with business about what they saw coming, we've actually already had over half a million dollars of business investment—new business investment—alongside those core funding areas.

So it's a—the value in that programme is the core funding had enabled our science teams to collaborate with other science teams to look beyond the current issues, as opposed to deliver to current projects. And that excites businesses in New Zealand who think innovation is going to be critical for their success. So we're using it both to respond quickly and to see new areas and attract business investors. And those would be probably the two headliners that core funding have enabled us to do that we weren't able to do prior to the establishment of core funding.

Clark Thank you for the presentation. I have a number of questions, firstly around the business case and—I'm expecting you will have had a chance to look at the Auditor-General's response to my request for an inquiry into the restructuring that AgResearch is doing overnight—if you hadn't had a copy earlier to kind of proof. I've only had the night to look at it, but what I make out of it is that she has chosen not to dig into the substance of conflict of interest questions. She's said that there are processes in place. She gave a finding of that nature. She's also put off a couple of other lines of questioning.

But the one thing she has been quite critical about is the preparation of the business case in the organisation, and makes a recommendation that a new business case needs to be written, effectively, for future decision making.

That's going to have serious implications for the restructure ahead—there's no doubt about that, I imagine.

So my question—my first question is, because you will have some idea about these things even though there isn't a subsequent business case published: is it still the case that the business-as-usual options—they were labelled option 1 and 2 in the original case—are still expected to have a higher net present value than the restructure at 2022?

Richardson We did receive a copy last night, so we've had a chance to look through it. It's relatively short. We actually read from that that the Auditor-General's found that the business case that we produced in 2012 was actually appropriately done to provide the basis for management, the board, and our owners to make the decisions we were asking for at the time, which, essentially, was to proceed to the next steps. And for us—that was a major point in the road for us, because it was going to require us to consult with staff—over 200 of whom we were proposing to move—work closely with stakeholders and other collaborators to gauge their appetite for catalysing the innovation hubs that we spoke of in there. And we weren't going to start down that journey or establish the project teams to execute a plan of that scale until we had had that indication to move forward. So I think the report actually says that the business case was appropriate for the decisions at the time.

The report from the Auditor General tactfully says that the standard of the Business Plan wasn't great, and that AgResearch didn't have the skills to embark on the project.

And the report refers to what's always been in our plans, and signalled at the time—an updated FFP business plan now, as we sit on the cusp of making significant capital decisions. So between 2012 and now we have catalysed some very different thinking. I guess the most obvious one is around Lincoln, where in our 2012 business case we had proposed to build a new AgResearch building to try to connect the university precinct with the wider CRI precinct. But the Crown support for Lincoln University to rebuild their science facilities means that we now—five partners in the Lincoln Hub as they stand today: ourselves, Landcare Research, Plant and Food, Dairy NZ, Lincoln University—have an even denser master plan, which has all of us, ultimately, co-locating on the university campus and agribusinesses clustered around us. So that means we do have to update the plan; it doesn't have any effect on our proposed staff movements, but it will certainly be a different build programme at Lincoln. We also have, as Sam indicated in his opening remarks—

The other four partners are already at the Lincoln location, and thus are not susceptible to the catastrophic staff (capability) loss that is the problem for AgResearch.

Clark Sorry, Mr Chair, I'm not sure whether Dr Richardson's understood my question. I can understand his defensiveness about the letter and—[*Interruption*] Well, the Auditor-General made some clear comments about deviating from normal business practice. I think we can debate, you know, what exactly her letter said. My question was about the net present value of the investment in 2022: whether it's still the case that future returns are within the margin of error, and that even at 2022 business-as-usual is a better case than the restructure that they're proposing to proceed with.

Yang I thought the CEO was going to come to the point.

Richardson So directly to the point, the business case has not been done. The point is

that the updated business case won't **(this might have been "will" – see below)** be done between now and 30 June, and that is because it lines up with the development of the programme business case and the project business case for the Lincoln Hub. So our plans and their plans are inextricably tied. As we get that information through for the master plan and construction plan for the Lincoln campus, the construction plan for the Ruakura campus, and the construction plan for Invermay and Palmerston North, we'll be remodelling those construction costs and remodelling our financials, because it is 3 years down the track. And when we have all that work done, I will be able to answer your question around the NPV.

Obfuscation from the CEO, the NPV estimates in the first Business Plan were not encouraging.

Clark So 30 June you'll be publishing an updated business case that will withstand scrutiny for the restructure—and I'm assuming that you're doing that in good faith—and it will either show that the restructuring should proceed in your view or not. And that will be published on 30 June? That's the date we're aiming—

Richardson I'm not sure about the publication date—we're working through with officials to identify when those various reports are due. We're going to be finishing ours by 30 June, and we'll be writing it with a full expectation that it will be public unless there are commercial confidences to be protected.

Clark So what implication will this have in terms of future decision making through to 2017, when the shift is originally scheduled to happen? I'm assuming that will push out a number of those deadlines.

Note : the first estimates re the FFP were that staff would be shifting in 2016, not 2017 as now.

Richardson Well, we don't know. It will have a material impact when we know what the exact construction time lines are. The build plans are now being worked through as we complete the master plans. And, as I've been sharing with staff just this week on our roadshow,

Just this week on the "roadshow" staff were told that finance is tight and it will be much worse next financial year and there will be "implications for staff" – read redundancies. The planning may be for a $120 to $130 million company, (income in the year to June 30, 2014 was $160.8 million, 7 million below budget).

as soon as we have a better feel for when the moves will take place, we'll be sharing that. We all have to plan our science. Many of us have to plan our personal moves to new locations. And when we have confident new dates—if there are new dates—we will be letting our staff know, and others working with us.

Robinson Could I just add one thing, too, to that. The NPV calculations—there's some debate about what discount rate to use, as well, which I think did

move the dial quite a bit. There was margin of error between all three, quite frankly. And so, you know, we're going to need to get some clarity and guidance from Treasury as to what discount rate to use.

Clark — I'm pleased to hear that. I mean, the returns within the margin of error for throwing $100 million of taxpayer money in the air doesn't inspire confidence, so I'm glad that you are receiving advice on that.

Collins — Can I just ask you, please, if you could just, perhaps for the benefit of the committee, point out some of the desirabilities—or the desirability, whether it is—to be part of science hubs when we have constantly changing information and the internationalisation of, obviously, science information?

Perhaps if you could explain to the committee why you'd want to be part of the hub.

Richardson — It's, as Sam indicated, at a high level it's: why is this international best practice?

This is classic Richardson, always at a "high level" The so called "international best practice is a figment of the AgResearch imagination. Compelling details of the advantages of such a move are not forthcoming. At various meetings at Invermay (at Mosgiel, approx 70 positions to move to Lincoln), staff have repeatedly in face to face meeting, asked for just one compelling reason or advantage to justify a move to Lincoln, none have been forthcoming. Meantime in the last three years the scientific staff in the Sheep Genomics and Genetics Group has halved (from 16 to 8). Of the remaining 8 several will not go to Lincoln, thus a most productive group will largely be destroyed.

For our staff at AgResearch it means that more of their AgResearch colleagues and their science colleagues from other CRIs and in industry will be in close proximity and being able to grapple with the big questions that we have—like the National Science Challenges pose. So we are less and less about doing science in our own disciplines—you know, genetics, plant science, ecology—and much more about system science to solve big problems. So that's why, internationally, you see multidisciplinary teams being co-located. You know, even though we can interact easily now at distance, actual creativity makes a difference.

This is simply flannel, unjustifiable theory.

I think the other really important point, and it's particularly true in New Zealand—efficiency of work. Many of the science disciplines that we work in leverage off very expensive pieces of kit. One of the disadvantages of a fragmented science system is you end up having to own them in many, many places.

This "expensive kit" justification is also false, and the required relocation (by AgResearch) of the skilled technical operators of these complex scientific analytical machines, has already resulted in several resignations from Palmerston North. It is not necessary for every location to have these expensive measurement machines, nor to rebuild the high spec

laboratories again, when the already exist at Invermay, and when the logic is to leave the staff at Invermay in what are the best buildings that AgResearch have.

Shifting an animal science group from Invermay to Lincoln, when .....

a) They are housed in AgResearch's best buildings already,
b) There is no land available for experimental flocks at Lincoln,
c) There are few scientists with whom to cooperate in addition to what is existing already between the Lincoln and Invermay groups, this is minimal now,
d) 41% of the ram breeders served by the Invermay group are in Otago, south of the Waitaki river.
e) As well as the strong Invermay science group, Beef & Lamb Genetics, AbacusBio (a primary industry large consultancy company), Zoetis (International Co which markets AgResearch technical products to industry, plus Otago University – Genetics Otago, the university has a stronger genetics capability than any other University Centre in NZ.

Makes no sense at all, an existing strong science hub already exists, of which the Invermay is an integral part.

The AgResearch / University of Otago collaboration is the strongest of any university in NZ, evidence of this fact has been provided to the AgResearch Management and Board, and has been ignored.

So one of the key drivers for our staff, and those that are looking to locate with us, is that we'll establish truly world-class platforms.

A "truly world class platform" in genetics and genomics already existed, and AgResearch management seem hell bent on destroying it. Capability has been severely diminished, and if the shift to Lincoln proceeds, the group will effectively be destroyed. This group touted in AgResearch's Science Review of 2010 as one of the most effective groups --- http://www.agresearch.co.nz/publications/sciencereview/science-review-2010/Pages/improving-sheep-breeding.aspx

And regardless of what organisational badge someone wears when they come to work and they go home, we're all going to leverage off some of that infrastructure.

Collins And the relationships. Personal relationships matter.

Richardson Yeah, and at each of our hubs, one of the key things—and we call them innovation hubs rather than science hubs—each of our hubs has business at its centre. So that ensures that the work we do is relevant to business, but it also means that the risk between undertaking the science and having the pull at the other end of the pipeline is shortened. So that's an attractive environment for modern scientists to wish to work in. Most of them come to work to make a difference.

Collins Thank you very much. Just like we do, by the way.

Foster-Bell In around about September 2013, which is within the scope, obviously, of this annual review, when the restructuring plans were announced, I saw a media report suggesting that up to 60 staff had chosen to leave the organisation rather than face relocation. That was a comment from my colleague, Dr David Clark. I was just wondering whether you could confirm whether that's an accurate number or that's a factual number of people or—

Richardson No, that number is not true.

The number of staff leaving the organisation will be a lot higher than 60. Many AgResearch staff are not divulging their intentions re moving to new locations as part of the FFP. They are simply "farming" their redundancy entitlements. Indication of not intending to move to senior management will simply get them on a "next redundancy" list. In the 2012 – 2013 year 26 scientists were lost (16 senior scientists), and 13 technicians, and since July 1, 2014 there have been approx 48 scientific staff left already.

The losses already in the 2014/ 2015 year go carefully not mentioned.

Clark [*Inaudible* **10:41:58**] gave me wrong numbers, unfortunately, yeah.

Foster-Bell So can you give a characterisation of what that might have looked like, in terms of people choosing to leave rather than co-locate?

Richardson Look, I can answer that in a couple of ways. The first way is at a staff turnover level the turnover of staff at AgResearch remains within our normal ranges—right? And that's relatively low. So it's generally under 10 percent.

A turnover of 10% of scientific staff is very high!

The last 2 years have been lower than the previous 3, average. So look, at the highest level our staff turnover remains low. There absolutely are a few staff who have chosen to leave and take positions in the city where they now work, because for them Future Footprint wasn't going to work. And less than 12 folks, so far, have indicated that that would be a reason for leaving.

This isn't correct, the number is at least twice that number, many have left already because of the FFP, plus of course there have been many redundancies.

So, as Sam said, our eyes are wide open to the risks. The number of staff that have left so far because the city they live in now was where they preferred to live might be 10, but also I guess I have to caveat that a bit by saying not every staff member gives a reason for leaving. So the number of folks that have said that's why they're left is in that ballpark, but our turnover remains low. **Not so!**

Foster-Bell So that original report was a massive exaggeration.

Richardson Yeah, it was incorrect. ??

Foster-Bell OK, thank you.

Clark I've got a series of questions following. It's kind of a separate topic but I'm glad it's been introduced. In 2012 58 percent of people in your staff engagement survey said they had confidence in the leadership. In 2013 that went from 58 down to 54. In 2014 just 39 percent said they had confidence in the leadership. It was the second lowest response in the whole staff engagement survey. What do you put that down to?

Richardson We were not surprised by that, and we went out with staff afterwards around workshops and asked what was behind that. As you know, it was a very tough year for AgResearch. We had to make a large number of science staff redundant on the back of the MBIE investment round that we did not succeed well in, and that always shakes staff confidence. From that survey to the snap survey we've done in the last couple of weeks, job security and funding security remains a huge issue for staff.

Clark I mean, in 2014 just 9 percent of staff said they felt engaged; 37 percent said they felt disengaged. That's a pretty damning indictment on your institution, isn't it?

Richardson We certainly are not happy with that trajectory. We've been working hard to turn it around.

Clark Can I ask some specifics—since it's been raised about staff movements—and specifically, I want to look at the sheep genetics and genomics area, which, of course, is the core of Invermay. In the 2010, I think, in one of your research reviews, you highlighted it as group of particular importance. Can I ask whether a number of staff—I think there was a total of 16 were there in 2012, can I ask if these people are still there? Dr Anette Becher?

Richardson No.

Clark Dr Jason Archer?

Richardson No.

Clark Dr Paul Fisher?

Richardson No.

Clark Dr Julie Everett-Hincks?

Richardson No.

Clark Dr Tim Jowett?

Richardson Not sure.

Clark Mr Michael Lee?

Richardson No.

Clark Dr Benoit Auvray?

Richardson No.

Clark Bronwyn Smaill?

Richardson I don't know.

Clark Dr Gemma Jenkins?

Richardson Don't know.

Clark Natalie Pickering?

Richardson Don't know.

Dr Richardson's recall of previous staff members shows he is out of touch.

Clark Can I give you a hint that all 10 of those people, out of the 16 total that were there in 2012, have left the organisation. That is phenomenal turnover, I put to you.

Richardson That number—

Clark That time frame in the critical area of sheep genomics and sheep genetics that adds $30 million a year to the economy, historically.

Richardson That 16 number is not an accurate characterisation of the team. It's a much, much larger team than that, and during the same period—

The number of 16 is the number of scientists and therefore a very accurate characterisation of the team, the other staff in the group are technical staff, many of them in Genomnz, the genetic analysis laboratory which serves the group and industry.

Clark That is the science team. That is the core scientists in the team.

Richardson Well, with respect, it's not. The senior scientists that lead that group are not amongst the folks you've mentioned, and in addition, during the time frame we have recruited a world-class beef geneticist from Canada to join the team and a number of other new scientists to join the team.

Again this is "economy with the truth" the senior scientist (only one) to whom I think Dr Richardson refers, has now only about 20% of his time in the animal genetics and genomics area. Amongst the scientists lost are two L3 classification, that being directly below the AgResearch senior Executive.

Further, several of the scientists that remain will not shift to Lincoln in 2017.

So you are correct in observing that animal science in New Zealand is an area where historically we've had much larger activities, so the science repositioning that we undertook last year, based on what we perceived as the industry's need for science, meant that we did reduce some areas of animal science. I'm not going to comment on some of the individual reasons for moving. I've made comments already about the number of staff who have left as a result of FFP.

Clark How many of the 10 core scientists in the reproduction group that were

there in 2012 are left?

Richardson We don't use the term core scientists. So the reproduction and genomics group, which is largely, but not exclusively, based at Invermay, has had both departures and new arrivals. We continue to recruit into that area in the niches that are growing—

Clark I put it to you that only three out of 10 that were there in 2012 are left, and that I know of at least one more who is considering leaving the organisation. That's gutted the reproduction group.

Richardson With respect, the science repositioning around the reproductive group did have an impact on our staff. That is an area where we continue to maintain national capability but with the need—the science support for that area is not a size it once was. So many of those were not voluntary turnovers, unfortunately.

After their reviews undertaken largely by overseas consultants, significant areas of science were dropped in spite of the fact that substantial additional support was required to capitalise on mature science with potential major breakthroughs coming.

Significantly AgResearch doesn't have the necessary scientific capability at the top level to undertake rigorous scientific reviews itself.

It is one of the harder parts of what we have to do, but we do have to constantly trim our sails to make sure we have the science that the industry and the science community needs us to be doing.

Clark Previous PSA surveys indicated that only 1 percent of scientists wanted to shift to Lincoln, and their reasons are understandable. Many of them have partners at the university who won't find similar jobs in Lincoln, their mortgages will likely rise, and so on, and the ones from overseas have come to Invermay because of its reputation rather than AgResearch's invitation. Is your expectation that more than 1 percent of those who were there in 2012 will shift to Lincoln?

Richardson Well, I don't accept the 1 percent number, but our expectation is well over 1 percent of staff will relocate to Lincoln.

The 1% figure, came from an email from a senior staff member at Ruakura who stated in April 2014, "very few staff are happy to move, about 1%, the biggest group will leave or retire. Some don't want to move but have no option if they wish to continue in their field in NZ, others will look for other opportunities in the Waikato over the next couple of years". The 1% figure is also contained in a survey done by the Public Service Assn (PSA) see - http://www.psa.org.nz/media/releases/survey-points-to-major-dissatisfaction-over-agresearch-relocation-plans/

It is expected that more than 1% will transfer, but the total will most likely be disappointingly low.

While staff and industry are being discussed, it should be noted that the PSA members at Invermay passed a vote of no confidence in the Management, and similarly a vote of no confidence in the AgResearch Board and management was passed by sheep and deer farmers after an AgResearch presentation at Gore in March 2014.

Clark	At what point would you consider the restructure a failure? Would it be if less than 25 percent of those staff that were there in 2012 shifted?
Richardson	We don't have an absolute number that represents success. We're trying—
Clark	Less than 20 percent? Less than 10 percent?
Richardson	We don't have a number, we don't have a specific number that represents success. The key for us is to make sure that the core science and the core—
Clark	You have no measure of success?
Richardson	We do have a measure of success, and that's ensuring that we do the science that's needed by our sector in the best possible way.
Clark	This—with respect, the sector—what response have you to the sector, who say they are not happy with this restructure. The ram breeders—over 90 percent said that they thought that this restructure was something that shouldn't go ahead. They—
Robinson	Could I just challenge the validity of that survey?
Clark	You may, but it went to every ram breeder in the country and only—fewer than 3 percent didn't respond, of the major ram breeders in the country—hundreds of ram breeders.
Robinson	I think that's—
Yang	You, you may—
Clark	Happy to provide details.
Robinson	I just, you know—there's no supervision of that survey, there was no statistical analysis about what is the critical number to get, there was no validation of the responses. It was sent out by a ram breeder to a series of ram breeders to get the answer that he wanted. So it was an interesting statistic; it didn't surprise me, or us, because it was polling particularly the southern farmers who are deeply upset about an institution—

Comment from Dr Jock Allison, ONZM (Services to Science, 2000). "I carried out the survey and attempted to contact all of the Ram Breeders on SIL (Sheep Improvement Ltd, the National Sheep Recording Scheme).

"No supervision"? – does AgResearch supervise every written or verbal communication received by any scientist?

"No statistical analysis about what is the critical number to get"? – I contacted 100% of the ram breeders, and received responses from 96.2% - see below. No need for any statistics!

Table 1: Summary of responses to retaining scientists at Invermay

Number of Breeders	Yes	No	Abstain	No Response
394	**363 (92.1%)**	5 (1.3%)	11 (2.8%)	15 (3.8%)

NB: of the 5 No votes, one from Lincoln University, and one assumed from AgResearch.

"It didn't surprise me or us....." see above. The survey polled all ram breeders on SIL- 394 of them, not just the southern breeders! There was a small clique of friends of the Chair of AgResearch who abstained or voted No.

Clark There were three or four in the Hawke's Bay that were in favour of the move that live near you, yes. But the remainder of the country—

Robinson No, no. No, there were significant ram breeders that didn't respond, either.

There aren't many significant ram breeders in those who didn't vote "Yes" to the retention of the scientists at Invermay.

Of course AgResearch can not admit that such a significant group is strongly opposed to their plans to shift the group to Lincoln.

Clark With respect, there was a very high response rate, much higher than in any other survey I've ever seen in my life.

Richardson I guess what is a matter of record is that when we announced the Future Footprint plans after the full consultation with staff, and then another set of consultation with the sector, sent it all over New Zealand, sector body representatives have come out in support of Future Footprint—the dairy sector, the deer sector. Beef and Lamb New Zealand obviously have constituencies that are not happy, but Beef and Lamb New Zealand supports the intention of the Future Footprint, and, in fact, most of those sector bodies are partnering with us on one or more campuses to realise the benefits that I described in an earlier question. So across the agricultural sector there is very strong support and an empathy for the fact that for our staff today—the 230 or so that we currently have who would be relocating—it's a difficult time.

Beef & Lamb NZ have always said that the "capability" must be retained, otherwise their funding will "follow the capability". This is already happening, as B & L NZ finding has followed two of the leading scientists from Invermay, to where they have relocated (entirely to the Future Footprint Plan), at Otago University. About $600,000 / annum lost to AgResearch right there due to their myopic view, re transferring the group to Lincoln.

Clark Can I just ask then, sorry, one final question? Because, since you've raised it, about groups you've consulted, the southern Texel breeders association, Beef and Lamb New Zealand, the Otago Regional Council, Environment Southland, Dunedin City Council, Otago University, New Zealand Deer Farmers Association, Southland Federated Farmers, Federated Farmers Otago, Perendale Sheep Society, AbacusBio, and Genetics Otago all raised

concerns about the restructure plan. I find it difficult to accept that they are all fluffy ducks with it now, as you've just characterised it.

Richardson Well, I wouldn't call any of those guys fluffy ducks, but they have all worked with us around consultation, and many of the groups that you've mentioned have come out as we've announced the post-consultation plans and supported what we're doing.

Again this is total fabrication, None of the groups above have come out publically and supported "what we (AgResearch) are doing"?

Cunliffe Along the same lines, what are the total number of positions which are being displaced or changed out of the Ruakura research facility, and how many of those are scientific positions?

Richardson I'll have to come back to you with the specific numbers at Ruakura, because we—

Cunliffe I think it's in the order of 180, total.

Richardson It's ballpark, yep.

Cunliffe Ballpark? So let's say that that's around the ballpark. Since the announcement of the Future Footprint changes at Ruakura, how many resignations or notices of resignation has AgResearch received from science staff?

Richardson I can get you the specific numbers for that from Ruakura—

Cunliffe Do you at least know the general number?

The CEO should have a good idea about these numbers, and appears to be stalling.

Richardson Ruakura remains below the long-term average for both voluntary and involuntary turnover, so it remains low.

Cunliffe Has there been any change to the churn rate since the Future Footprint programme has been announced amongst Ruakura staff?

Richardson No, there hasn't. Ruakura turnover remains within—

Cunliffe Can you provide 5 years of time series data, please, on churn by position type to the committee in respect of both Ruakura and Invermay?

Richardson We certainly can do that.

Browning Supp on that: with Ruakura, I've seen major subdivision plans for the land associated that AgResearch has owned.

No comments on the Browning questioning.

Richardson No, we don't own it.

Browning You've never owned the land there?

Richardson We lease it from Tainui.

Browning OK. With the genetically engineered animals piece there, which is

reasonably substantial, have you got provision there in terms of looking at the environmental risks from that, if it was to go into, say, subdivisions or whatever? What's your approach round that, and what is the future of that programme?

Richardson So a couple of questions there. In terms of the work we do at the animal containment unit, it always operates within the compliance arrangements that are expected, and it is safe. In terms of the long-term development of the site, as Sam indicated, the owner is Tainui. We're working with Tainui as they develop their large plans for the inland port and the surrounding residential areas around what areas we would like to preserve for science. The area that you're talking about is one that we'll continue to talk with Tainui about in terms of when they would like to see that land back, and we will continue to evaluate the science we do there in line with the needs of the—

Browning Where are you at—so what's your intention at the moment and who are your partners in that science at the moment?

Richardson Science and our partners—one of them is the University of Auckland, that Sam mentioned at the beginning, one of our papers. That tends to be quite deep science, long-term, blue-sky, if you like, science. So they tend to be university collaborators, but also some of the larger breeding companies

partner with us in that science—CRV, LIC—in understanding how the genes work, not necessarily for genetic modification purposes.

Browning There are some issues with that land in terms of disposal of material, the fact you're spraying effluent, and milk, and genetic material all over that land. You say it's safe and the current—the EPA might go that way too, but I don't accept that, and I'm not sure that the public do. And there's animal welfare issues as well. Have you got an end point with that research? When are you going to stop it?

Richardson We don't have—we have many programmes, some of which have end points and some of which don't. We don't have an end point for the work we do in animal science there, no.

Robinson I just had a point to that bit, this was before Tom joined the company. We have had discussions with Tainui, and they are happy—there is a protocol as to how the land will be handed back, in the event that it is handed back to them, with the very things you talk about, the question of safety and that sort of stuff. So there is protocols and stuff recorded as to how that—which the landlord is happy with.

Foster-Bell Actually, supplementary to that, interested to hear that you're leasing land from Tainui, but can you tell me about the wider engagement you have with Māori on agricultural research? Because clearly that's a pretty important area for a number of iwi but also, if we're to lift Māori economic—

Robinson It's something that the company's very conscious of and is putting a lot of effort into—as simple as staff being educated for protocol and engage with Māori, in the board inviting Māori leaders to come and address the board as

to how we can engage better, the recruitment of special Māori science leaders who work with Māori organisations. We've been associate of the Ahuwhenua Trophy for a number of years, which is, again, a good setting down for relationships. It's a long-term business, as you know, dealing with Māori, but I sense that we're on the sort of the exponential part of the curve now where we're starting to get some real runs on the board. We've had a very good engage with Ngāti Apa, who bought Flock House from us last year, as I discussed, and, you know, it's just not a big iwi in terms of land asset ownership, but it's an important one, and it's a symbol of what we can do when we work with them. And of course, as you know, sir, the economic gains and societal and cultural gains from success in this is enormous because of the amount of land which is owned by Māori.

Foster-Bell What's the level of comfort by Tainui with the research that you're doing there?

Robinson Tainui specifically, I'll hand over to Tom.

Richardson Yeah, Tainui's very comfortable. They understand the work that we do, we work closely with them, and particularly now that we are relooking at our plans for that campus and they're co-evolving their plans for that wider region, there's very good interlock there. I'll just, perhaps, give two ends of a spectrum to illustrate the work with Māori that Sam just alluded to. Just a week ago, Friday, we signed a new memorandum of agreement with Te Tumu Paeroa, the former Māori Trustee. They have a particularly challenging subset of that Māori land, and working with their chief executive Jamie and his team, we think that we can do a lot for their landowners on what is very poorly performing Māori land.

At the other end of the continuum, we've had a decade-long relationship with a company that you would now recognise as Miraka, an innovative dairy company targeting exactly the markets that many of us feel New Zealand needs to target in offshore markets. That goes back about a decade, where they actually invested in some very, very groundbreaking science with us to understand particular health-giving benefits for milk.

So, unfortunately, many characterise the engagement with Māori and science as lifting from the bottom towards the middle. What pleases us is we have a number of partners in Māori agribusiness who are actually at the front end of what many other firms could learn from. So there's sort of two ends of the spectrum, and in the middle, as Sam said, we're intent on doing more.

Martin Thank you. Mine's actually around gender balance of your organisation, just to switch completely away from everything else that's been going on. So I notice that you've got a third of your board as women, out of your leadership team one out of 10 is a woman, and out of your exec team all are male. I notice you have a lot of women in your research teams, but it looks like we've got a bit of a glass ceiling, and so my question is to you, and I'm asking it of all Government organisations: what gender balance work do you do, or are you aware of, inside your organisation? What unconscious bias work do you do, if any? And how do you participate in encouraging

women to come through into those executive and leadership teams?

The important thing to note in this discussion is that women are valued in science. They are paid on the capability and science track record basis on an equal footing.

Richardson It's a very good question. I can say that the leadership team ratio has shifted since you've seen those numbers. In fact the most recent two, I guess, recruitments to that team have both been women. Not because they have two X-chromosomes but because they were the very best folks for that job—sorry, I'm a geneticist.

Martin Sorry, I do want to be clear, you know. This is not about women, this is not about a quota. This is about the fact that there are very, very smart women, and I can't believe that there's not enough smart women in New Zealand that we can't pick some to go [*Inaudible* **10:59:38**] leadership team.

Richardson Yes, so we run staff development programmes for all staff. We, particularly in AgResearch, are fortunate that we do have a number of women leaders in the leadership team and high performing, so they are role models that folks can see up and down the hall every day. We have a hole, if you like, in the middle of the AgResearch age distribution. We have a lot of staff of both genders that are in the 50 over category and a huge proportion of them are male, which reflects, I think, the science training and the science of the time. And then we have a lot of staff aged under 30, and that's much more evenly balanced, I believe.

See the comments earlier and the graph of age distribution.

It is a fact that Dr Susanne Rasmussen, one of the most prolific scientific publishers in AgResearch, who resigned specifically because of the FFP was interviewed for one of the Level 3 leadership positions. She was recommended by the interview panel, but later told by the Chief Scientist she was regarded "as having a very high level of integrity and being very honest, and that therefore the Executive Team / Leadership team could therefore not trust her as a team leader to always back them up and implement their decisions".

Obviously no place for vigorous debate at the top level!

Like many organisations, we do have a hole in the middle and that's a challenge for us, is to get our junior staff across that gap into leadership roles. That's something that we're addressing with our leadership development programmes for both men and for women. We certainly have our eye on it.

Martin Thank you, and one last question. Do you pay your women less than you pay your men scientists?

Richardson No. I don't believe we do. We have very—something that we brought to AgResearch was a very, very transparent remuneration system. We benchmark every role. We benchmark that against external market and we treat everyone equally.

Cunliffe Tracey, you might just—through you, Mr Chairman—request enlightening data about actual salary levels by pay grade by gender.

Martin Can I request what David just asked for please?

Robinson Chairman, could I just offer a comment on board appointments, which Ms Martin mentioned is three to six. When the Crown appoints directors the chair does work with both COMU and MBIE, and there's a very positive bias to try and redress that gender balance and we do search hard for talent that is female, as well.

Martin We've got a problem getting them—

Robinson Well, it's—I mean, I'm conscious of that on other boards that I'm on. It's something that we're doing the very best we can, and AgResearch has run for 2 years now a trainee development programme where we bring in a shadow director. We go to great lengths to make sure they are not a deemed director, we go out and actively recruit a—they are obviously younger, but a woman—and they come in there and they have full access to sitting with the board but they don't vote. So that is one of our contributions to try to generate more women directors. The funny thing is, the second time we went to the market we actually got almost a written complaint from a male about gender bias, you know, equal opportunities sort of stuff. But we are trying to do the best we can to redress that.

Martin Thank you.

Clark Supplementary through you, Mr Chair, on board practice. Sorry, Steffan, I understand you're next. The question about how you manage board conflicts of interest—I have received a heavily redacted copy of your board minutes, which indicated two conflicts of interest that had been declared in respect of the Future Footprint Business Case that I could see at first glance. One was the Mr Dunbier and Mr McNabb declaring conflicts as board members for pastoral genomics, and Mr Harris declaring an interest as a board member of Dairy NZ. And Mr Dunbier and Mr McNabb left the room for that part of the procedures. Another one relates to dinner with the chair of Ngāti Apa, and the conflict was in respect of sale of Flock House land. These—are you confident you have the right conflict of interest procedures in place?

Robinson It's something that—I absolutely defend that we are ruthless on that. What I would concede, until the auditor inquiry, is that we practised it but we didn't record it enough. So we declared the interests—the interest register's recorded, obviously, an open document which is available, and at the start of every meeting each director is asked: "Do you have any additions or deletions?", or directors are reminded that we have a duty to make sure there's no conflict of interest. When it comes to a specific item, we weren't recording the fact that, you know, Dr Dunbier or Barry Harris was involved in whatever and should have declared their interests, so we are now recording specifically—

Clark You can understand how that might have led to concern.

Robinson Well, yes, it's—I think it's, I'm not going to say overkill but we are consciously aware of it, but we weren't recording that consciousness. And so we're going that extra mile but I—culturally, I have no hesitation.

Clark Why have you adopted the Institute of Directors' guidelines rather than those developed specifically for public entities by the Auditor-General?

Robinson Apologies to the Auditor-General, we just went to a reputable organisation which is, if you like, a professional body which looks after, or which sets guidelines for, directors acting in a professional manner.

Clark Have you informed the Minister about conflicts of interest in respect of the Future Footprint Business Case?

Robinson I don't know whether we've informed him specifically, but—

Clark Do you think that might be a good idea?

Robinson I'll make sure he knows that, I mean—

Andrew Macfarlane is seriously conflicted, he is a Council Member of Lincoln University, A Board Member of AgResearch, Chair of Deer Industry New Zealand, a Board Member of ANZCO Foods and a Farm Management Consultant who promote the need for more Farm Systems research, If conflicts were appropriately handled, then he should be out of any Board meetings for much of the time.

A good illustration of conflicts is that Macfarlane and Dr Andy West (Vice Chancellor of Lincoln University) are part of the DINZ (Deer Industry NZ) Council which endorsed AgResearch's FFP only to have that overturned as the Deer Farmer's Association (who pay the farmer levies which fund the Council) were strongly opposed.

AgResearch were intending to shift the deer farming programme to Lincoln, where there was no land, no deer, and 350 km further distance from the large Landcorp herds where much of the Invermay scientists research is done. No logic in that.

Further at the time of the decision to leave the deer programme at Invermay, AgResearch promised to appoint an additional scientist to the programme. What has happened thus far is that the Deer Veterinarian has been made redundant, and the lead scientist is on reduced time, as part of enhanced early retirement.

Clark I mean, the Minister—and I know you have a Minister's office delegate in your audience here—the Minister has said he has not been, which is unusual, he said he has not been informed of any conflicts of interest in respect of that Future Footprint Business Case. Do you think the Minister—no, I won't ask that question, you can't answer for the Minister. I have to say I am concerned that the Minister isn't asking those questions.

Robinson Could I just make a point, though, which was on the Auditor-General's report of last night—

Yang Sorry, you want to make a comment?

Robinson I just want to make a point that conflicts of interest in agricultural agribusiness systems governance within New Zealand—there is a lot of conflicts of interests in a technical sense because it's such a small pool and there's so much crossover. And so I don't think conflicts of interest are unusual, so that's probably why the Minister doesn't know.

Clark No, it's how they're handled that matters.

Robinson As I said I would defend to the, you know, Ministry that we handle them appropriately.

Yang We have read the Auditor-General's findings, or report, so we know what you have done. Now, Steffan.

Browning Thank you. Look, about three strands to it, and part of it is conflict of interest as well—the conflict between, or the tension between, commercial science done with a commercial imperative, intellectual property with partners such as PGG Wrightson Seeds and the Grasslands project, and public-good science. But I want to put with that an umbrella of climate change and genuine sustainability. Genuine sustainability. Farming systems—you mentioned modern science approach—but where I see outcomes from AgResearch, I see monocultural approaches, I see intervention with animals with its greenhouse gas emission stuff, which is just—[*Interruption*]—and, no, there's a question well and truly coming along. Why are you not looking at agroecological systems, rather than this unsustainable IP-based stuff like herbicide-tolerant, genetically engineered grasses, single-crop outcomes? Why are we not seeing stuff that's actually genuinely enhancing biological activity, microbial activity, soil life, and the likes? I am not seeing it out of AgResearch.

Richardson Well, we should provide you with some more of that, then, because we have large programmes around farm systems and we have large programmes around sustainability, both in terms of soil sustainability—there are very few New Zealand farms which are actually monocultures, the health of those soils and the health of the animals—

Browning They are a series of monocultures, and I've used the plantain for an example. Plantain's been geared up and now we're seeing paddocks of plantain and then we see a problem with the plantain moth that never existed before. And then you've turned around and gone "OK, we'll do a biological control for that.", or some other control. You're creating a series of problems because you're not looking at a genuine systems approach, is what I'm seeing.

Richardson With respect, we are looking at—

Robinson [*Inaudible* **11:08:17**] I know that time's running out, but can I summarise? The science we do is done in collaboration with investors. So the science we do is—

Browning Right. And that's that tension.

Robinson And so the science we do is driven by end users—next users and end users,

and that's that 24,000 farms I talked about. They are the ultimate beneficiaries of a lot of our science. There's a whole raft of—it's a whole raft of science applications.

Browning From the investor? From Wrightsons?

Robinson Wrightsons have got to sell seeds. That's why they're in business, and those seeds get planted on farms, in an ecosystem—which is not monoculture.

Browning And cows die, in some instances.

Robinson Yes. And in circumstances we still don't fully understand. We do work with Beef and Lamb, who represent 12,000 farmers; Dairy NZ, who represent 12,000 farmers—there's a whole raft of farmers, from deeply intensive ones to strongly organic ones, and so we do a whole raft. I gave you some scientific examples at the start, in my introductory remarks, which have nothing to do with monoculture or GM. They are to do with natural science, you know, understanding how *Yersinia* can be involved in pest destruction. I mean, I thought this was working with nature. We are truly about sustainable agriculture, and we're about economic—we're about bringing economic benefit as well.

Browning That the—farming system, you have reduced the pests—may reduce the pest load that needed those natural outcomes. I just want to ask you, around PGG Wrightson and the seed development—both the genetic engineering, but also the herbicide-tolerant crops that they're doing—where is the sustainability in that, when you're involved with helping them produce a crop, some IP, that becomes dominant given the opportunity with them, that requires at least three herbicide applications and insecticide applications, instead of looking at a farming system that avoids all of those and can actually increase profitability for farmers. Why are you going down that approach, and rather than a full agroecological approach to farming? Including with the hub?

Richardson The vast majority of our work, and, in fact, I'll be more—all the work that's currently at and proposed for the Lincoln Hub is non-GM. We have a very small GM programme, not just with PG Wrightsons. In fact, most of it's public-funded. Most of the work, most of the germplasm that we release goes through PG Wrightsons and other seed companies on to farms, and, as you'd be aware, there are no advanced field trials in New Zealand for herbicide resistance or any other GM trait. So the overwhelming majority of our work is the sort of work you're describing, where we're looking at diverse pasture systems that can both withstand the pest and pathogen load but also climate change; new traits, selected for, to give—

Browning The herbicide tolerant product that Wrightson's been putting out—never tested for safety, it avoided the EPA because they used chemical mutagenesis rather than GE, but did the same thing with herbicide tolerance—it's got a big chemical loading associated with it. Does nothing for biological activity and promoting those soils, there's nothing there that will help us against climate change.

Richardson I think the science for that is different to the way you've described it, in

terms of the soil health, the amount of herbicide application, and the sustainabilities of those ecosystems.

Browning I've investigated it. I've gone and observed.

Robinson I think, actually, less cultivation means less compaction of the soil.

Cunliffe In the briefing material that we received, we were advised that progress across your 18 results areas in support of your 3-year statement of intent is

Robinson Yes. And in circumstances we still don't fully understand. We do work with Beef and Lamb, who represent 12,000 farmers; Dairy NZ, who represent 12,000 farmers—there's a whole raft of farmers, from deeply intensive ones to strongly organic ones, and so we do a whole raft. I gave you some scientific examples at the start, in my introductory remarks, which have nothing to do with monoculture or GM. They are to do with natural science, you know, understanding how *Yersinia* can be involved in pest destruction. I mean, I thought this was working with nature. We are truly about sustainable agriculture, and we're about economic—we're about bringing economic benefit as well.

Browning That the—farming system, you have reduced the pests—may reduce the pest load that needed those natural outcomes. I just want to ask you, around PGG Wrightson and the seed development—both the genetic engineering, but also the herbicide-tolerant crops that they're doing—where is the sustainability in that, when you're involved with helping them produce a crop, some IP, that becomes dominant given the opportunity with them, that requires at least three herbicide applications and insecticide applications, instead of looking at a farming system that avoids all of those and can actually increase profitability for farmers. Why are you going down that approach, and rather than a full agroecological approach to farming? Including with the hub?

Richardson The vast majority of our work, and, in fact, I'll be more—all the work that's currently at and proposed for the Lincoln Hub is non-GM. We have a very small GM programme, not just with PG Wrightsons. In fact, most of it's public-funded. Most of the work, most of the germplasm that we release goes through PG Wrightsons and other seed companies on to farms, and, as you'd be aware, there are no advanced field trials in New Zealand for herbicide resistance or any other GM trait. So the overwhelming majority of our work is the sort of work you're describing, where we're looking at diverse pasture systems that can both withstand the pest and pathogen load but also climate change; new traits, selected for, to give—

Browning The herbicide tolerant product that Wrightson's been putting out—never tested for safety, it avoided the EPA because they used chemical mutagenesis rather than GE, but did the same thing with herbicide tolerance—it's got a big chemical loading associated with it. Does nothing for biological activity and promoting those soils, there's nothing there that will help us against climate change.

Richardson I think the science for that is different to the way you've described it, in

terms of the soil health, the amount of herbicide application, and the sustainabilities of those ecosystems.

Browning I've investigated it. I've gone and observed.

Robinson I think, actually, less cultivation means less compaction of the soil.

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Richardson OK. So the 18 result areas that we have—we developed those in large part with either the next user or the end user, and what we've strived to achieve over the last several years is to make sure that we're all aiming for the same success. So in some of those areas, and a couple of the most recent reports that you have in front of you in the dairy area, Dairy NZ were planning to measure that in subsequent years. Right? So we track progress every year, we report on progress every year, but some of the absolute measures might be measured in 2-years. The vast majority of our measurements are annual, and we provide those updates annually.

Cunliffe So the strength of working with your customers, and being customer-led, is the relevance of your research's enhancement—obviously support that. The difficulty, when one measures one's performance in terms of the joint outcomes with customers, is it can be harder to trace the impact of your own outputs. How do you differentiate between the collective outcome and your own outputs? Do you use a combination of output and outcome measures, or—how do you do that?

Richardson Yes, we do. And you're actually on to one of the harder bits. So it's quite easy for us to measure our outputs—science publications, Fieldays, reports delivered—but what everyone invests for, particularly the Government, is the impacts for New Zealand. And you're absolutely right. You know, as much as we're proud of the contribution we make, by the time it ends up on someone's farm, and makes a real difference in the vat, there are many other contributors. So what we have to do—and, again, we try to work with independent agencies, either economic firms or they—in the case of Dairy NZ—to try to follow the line through and ask what was the contribution. But you're right. In some of it, is difficult to pin down.

Cunliffe There's no particular catch in this question, I'm just new to this portfolio. I'm conscious you've got 3,500 FTEs, you're the largest provider of agricultural research in the country, and—

Robinson Seven hundred and fifty.

Cunliffe Seven hundred and fifty? Three and a half thousand—

Robinson Sorry, must be someone else—

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Cunliffe Oh, OK. [*Inaudible* **11:14:01**] My apologies.

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One issue which has arisen in the last year was the Fonterra botulism scare, and seems to me AgResearch dodged the bullet a bit, fortunately for you guys, because the attention was very much on Fonterra. However, the botulism original testing was done, I think, in AgResearch facilities, and that had to be crosschecked overseas. The report which followed, as we've been briefed, indicated the need to enhance the communication systems between Fonterra and AgResearch, which were previously at scientist-to-scientist level, to put in some second-tier checks. Can you describe, firstly, what shortcomings your joint reviews found; and, secondly, what changes have been put in place to ensure we don't—or couldn't—get a repeat of that very major problem?

Richardson Yes. So the—what the report highlighted was that, as that small project—and the report reveals that the size of that project was a couple thousand dollars' worth of work, to originally get an insight into what might be happening here—what the report revealed is that the science teams between AgResearch and Fonterra were well known to one another, and they frequently worked back and forth informally. And what was originally deemed to be a very, very low-risk project to get an insight was agreed amongst the teams to proceed, and probably not the higher-level understanding of what the context for that work was. I think that's the major finding in the WPC report.

So what we've done, subsequently, is ensure that the work is, actually, elevated to the next level, so that both the—Fonterra, where it's appropriate, but for AgResearch more widely—the customer and the scientist and the scientist's line manager are aware of what the work is, a better understanding of the context for the work. And so we've put those systems in place to make sure those were reviewed.

Cunliffe So were you involved, and forgive me if this is a basic question—are you involved with ongoing testing around botulism and milk powder purity, as a part of your sort of regular outputs for Fonterra?

Richardson We don't have any of those projects underway at the moment, no.

Cunliffe So they've outsourced that to offshore laboratories, or—?

Richardson I don't know what their—what Fonterra's doing.

Cunliffe Are you engaged in other forms of routine testing to meet regulatory health and safety requirements?

Richardson We tend not to do testing. We tend to do the research. Where we're doing testing, it's generally in product testing, and where we do do testing we operate within the requirements of those tests. But we don't do food safety

testing, and we never have.

Robinson We try [*Inaudible* **11:17:09**] by AsureQuality.

Cunliffe So amongst the requirements of that review were to document testing plans with the laboratory and client. Can you provide us with a copy of the testing plan that arose from the botulism incident, if that's been validated?

Richardson No. There isn't a testing plan for that work; it wasn't a testing project.

Cunliffe Can you give us some examples, please—just follow up, I don't need them now—of testing plans that you've used for when you've done other phytosanitary, health and safety-type research?

Richardson We do very, very little of that, but if we have, we'll provide an update on those.

Cunliffe That'd be great. Contestable funding obviously made a hit on the balance sheet. Despite your cost compression, you're down about $2 million. How much revenue did you lose as a result of that contestable funding round?

Richardson In the year that we're talking about, the difference between the budget and what we—what the upturn was $4.3 million.

Cunliffe OK. And which projects did you lose contestable funding for?

Richardson I'll have to go back and get you the specific details.

Cunliffe You can't recall?

Richardson No, I can't recall the specific projects.

The CEO of the biggest CRI can't remember what projects were affected. Obviously works at such a high level, science and particular projects are below him?

Cunliffe Roughly what area? Roughly what area of science?

Richardson It went right across the—before that I'd have to come back to you on the specific programmes that missed in that particular funding round.

Cunliffe In response to my colleague earlier, you said that it had a measurable impact on your staff satisfaction surveys because the loss of contestable funding is obviously a big deal—but you can't remember, as CEO, what areas that funding was lost in? Just generally speaking, $4 million—some of it?

Richardson It was spread across a number of smaller programmes—David, if you have—

Godwin Animal nutrition and health.

Richardson Nutrition and health, the reproduction group—

Cunliffe Who did you lose the contestable funding to? Somebody else must have got it.

Richardson No, we didn't always lose it. The—it's a contestable portfolio, and in not every case is the—

Unidentified Sometimes the research is discontinued.

Richardson The research is discontinued, or the—you know, the audit trail to where it ends up is not clear.

Cunliffe So can just you provide to the committee, please—and I give you time to perfect your memories—what projects were discontinued or lost; and, in the cases where they were lost to a competitor, where they went to? That would be helpful.

Richardson We won't know the second, but we can certainly provide the information on the bids that were submitted, and the bids that were unsuccessful and the bids that were successful. They don't always align with programmes.

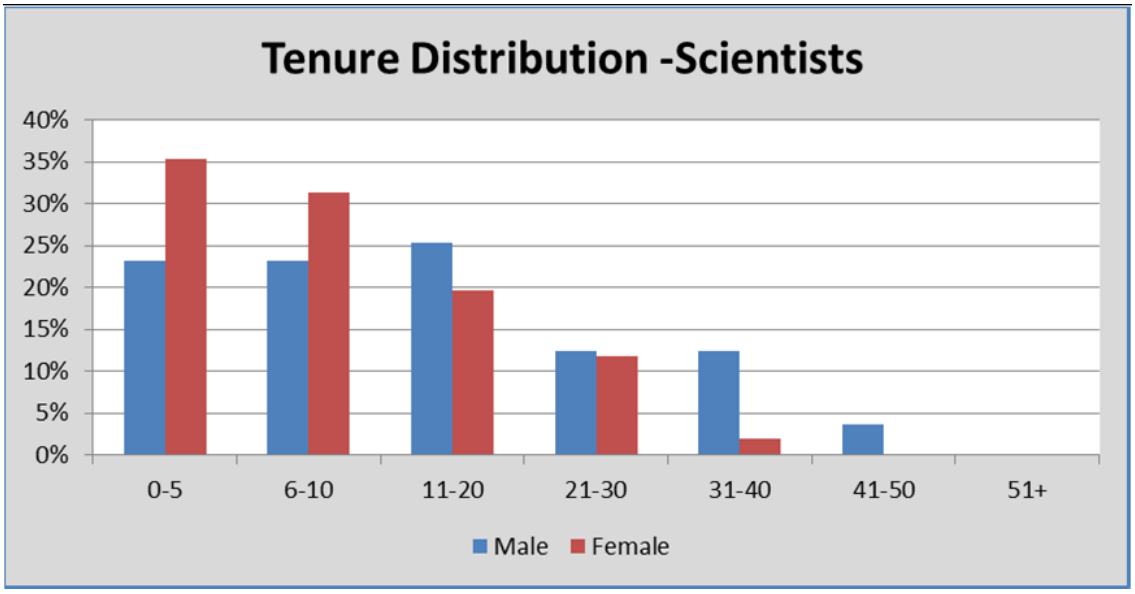
(any Research Director worth his / her salt would know exactly where the funding applications missed out and would be doing something to conteract that in the future. How can anyone be an effective research director otherwise?).

Clark A supplementary on that. If possible—I mean, I'm aware that in the current financial year following on from that, and rising out of the concerns from that track record, there's further funding that's been lost. I'm aware of some that's gone to Otago University and others—but estimated by some to be of between $5 million and $10 million, which will have a significant impact on your future viability, I would suggest. Could you please supply what figures you've got up to date on that so that we can examine that more fully? And, I guess, my concern—and I'm interested in your view on this—is that what is happening is that dairy is being consolidated across your portfolios, and it's reinforcing sector dominance.

New Zealand's challenge, according to the Reserve Bank Governor, is an overreliance on dairy and an overreliance on China, and one of the key institutions in driving sector performance—with a proven track record of driving sector performance across other animal groups—is downsizing its operations, precisely those operations that would encourage diversification and resilience in our economy. And the Government's target of achieving 30 percent growth from 30 percent to 40 percent of exports is not going to be met. How are you making the trade-offs around which areas receive what proportion of your overall investment?

Richardson Well, the vast majority of our overall investment is driven by success in contestable rounds of one sort or another.

And here lies the problem, firstly research funding in real terms has been diminishing for years, and the loss of many of the senior scientists in AgResearch over the years now means that 53% of the scientific staff have been in the CRI for less than 10 years (see AgResearch's Annual Report 2013 / 2014 – Figure below, p23. This is not a strong base for success in science bidding rounds, because of limited experience and track record, so important for success in a contestable bidding system.



This seems to be indicative of the huge loss of scientific experience in comparison with earlier times. On this basis AgResearch has lost a huge amount of farming science experience, and with the big influx of overseas appointments (70% see earlier) the understanding of NZ farming systems and technology application to the various components will be limited. Also much has been made of the moves into the science of "high quality food", making the gap in experience in transferring relevant technology to the 24,000 SMEs claimed at the start of AgResearch's presentation even more unlikely.

Already huge damage has been done to the AgResearch science capability and therefore potential industry effect through staff losses through redundancies and resignations. Much of this is due to reduced funding, AgResearch's very high costs / FTE (Full Time Equivalent – greater than $300,000 with overheads now into six figures, but the dogged insistence that the Future Footprint Plan will be implemented will exacerbate the continuing diminution of scientific capability of the CRI

Clark So it's not driven by a conscious programme of wider interest of New Zealand?

Richardson It is. We have our 18 impact areas—our outcome areas that we spoke of before. They're evenly balanced across the wider agricultural sector.

Clark Any different messages? Sam was shaking his head, and you were saying: "It is."

Robinson No, no. I'm agreeing and we—but Tom was right in the 18 areas, but we need to have partners to invest. They have—

With diminishing capability it becomes more difficult to attract partners to invest (i.e. R & D funds from either MPI or industry). The relationship with industry is critical, not particularly good with Beef & Lamb, and worse with the Dairy Industry.

Clark So are you saying that the system doesn't work, essentially? If diversification in growing alternative sectors is the object of—

Robinson Well, we're talking about two lots of funding. We're talking about contestable funding, which is MBIE, and then I'm looking more at the levy funding, which is where the real funding comes from. That's where the drive comes from. And that's where the impacts were going to occur. Dairy have—

Clark Success is driving more success, so consolidation is happening.

Robinson So my point I wanted to make is that Beef and Lamb, which is, I think, the area you're talking about, which has got a significant influence over the major landmass of New Zealand through sheep and beef farms—they are going through a levy round this year, and we are hoping that they will get that levy and continue to invest in science which is applicable on sheep and beef farms.

Again, this is pretty small for AgResearch. Beef & Lamb NZ spend only about $5.4 million on R & D, and $6.9 million on extension. Beef & Lamb Genetics has secure funding of $44 million over 5 years, of which $15 million comes from Government. With the running of the Invermay Genetics & Genomics Group (including the skilled scientists who have defected to Otago University where they are still funded by B & L) , and the B & L Head Office in Dunedin, there is little left for other programmes.

Yang All right. OK. So David, you have how many more questions?

Cunliffe Yeah, I've got one more question. To wrap up on that, with the 18 result areas, can you just quantify by level of funding what's going into each—your level of investment. That would be helpful. And can you differentiate, please, between contestable funding and levy funding for each of the areas.

My final question, Chair, and back to you, my colleague, after that—and this reflects my interest as our tertiary education spokesperson, as well as science and tech—which is: you're saying 60 to 70 percent of your science recruits are from offshore. Now, that could sound like a good news story because you're, you know, recruiting at world standard, and I'm not going to argue whether that's right or wrong, but wearing my tertiary education hat, why the hell aren't we producing more scientists that you feel you can employ?

Richardson So one of—we would agree—one of the things that we're trying to catalyse with the hubs is that much closer relationship between the universities and our applied science activities, and the next users for that. I think for many—

The relationship with Otago University is poor, over the Invermay situation.

I mean, I've got a view—for many, too many of our young people sleepwalk past the agricultural sector during their university education without realising the opportunities that it has. To be brutally honest, not

just scientists but marketers, IT professionals—we need the best talent in the country. So we, AgResearch, have formed a joint school of—in graduate study with Auckland University to try to tap into that urban studentship. With Massey and Lincoln, their integration into our hubs is really critical. We think we can produce new offerings for students that will attract some of the best and brightest to this sector.

Cunliffe That sounds great. Are there particular areas of science where—and in fact, if I do that as a data request, it might be easier to do it. Of the overseas recruitments that you are doing, what areas of science are they heavily weighted to—i.e. where is the gap between the New Zealand graduate output and your hiring needs?

Richardson So the big gap, which is the New Zealand and an international one, David, is farm systems work. And it's been an area where internationally, and particularly in New Zealand, we have not trained a lot of scientists in that area.

This is because "Farm Systems" (whatever that means?) is a greatly outmoded discipline. Back in the 1970s and 80s this was all the rage, in the US and elsewhere, but little has been contributed. In agriculture all scientists who consider where their particular bit of component research fits, model the effect to some extent. To consider that "farm systems" is a the main area in which AgResearch should be concentrating doesn't really grapple with exactly what should be done, and where might that be applied?

In research such non specific generalities might sound great, but much more definition is required?

Cunliffe Isn't that amazing.

Richardson So it's a huge gap. You know, it's gone—it went—[*Interruption*] Yep, so in the areas—you know, component research, you know, like genetics or plant

Clark Success is driving more success, so consolidation is happening.

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With present B & L funding commitments additional investment will be minimal.

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Richardson So it's a huge gap. You know, it's gone—it went—[*Interruption*] Yep, so in the areas—you know, component research, you know, like genetics or plant phys—there are folks coming out of New Zealand that we employ. We also employ, you know, amongst the best in the world where that makes sense. But the biggest gap in New Zealand right now from a science perspective in our world is farm systems.

Cunliffe So that's almost an active business gap rather than an agriscience gap? Is that right?

Richardson Yes, it translates right up—if you—last year MPI, with funding from Dairy NZ and Beef and Lamb, did a skills shortage assessment, which points to 50,000-odd people needed to deliver on the potential for the dairy and sheep and beef sector.

Cunliffe Could you forward us a copy of that? That would be really interesting. As I say, that's just the system thinking for down the track, but we—.

Browning Bit of a supp on that earlier Fonterra botulism—

Yang One supp?

Browning Yes.

Yang OK. Have to be quick, because we're running out of time.

Browning So with that tension with the client and commercial interests, the client says what testing they might want done. And I do wonder whether the levels of detection that you might be capable of and through testing might be different than what the commercial interest is wanting to go public with, so they might want to sit at the maximum residue limit. There would be a chemical, for example. It's a side residue, but you might be able to detect other stuff that we, the public, don't get to see. Are there conflicts with the editing or the material that comes out that you may see, including microbiological such as botulism, than what the client is wanting and for its own interests?

Richardson Not in my experience. I mean, as a—when we do science, we have to be very clear about the confidence we have in any particular result. And science, unfortunately, is frequently uncertain to a degree, so we have to be crystal clear about where that certainty resides. And I think we do a very good job of that.

Yang OK, Melissa, final question.

Lee Final? Just one?

Yang The last one.

Lee OK. Thank you, Mr Chair. I walked in when you were talking about the clover root weevil, I think. And I'm very interested—not so sure whether you actually explained that or not—but what work you actually did to, in fact, either, you know, stop the spread or slow it down.

But while I'm actually on that pathway, I heard my Green Opposition member talking about climate change, and that reminded me that you're doing some work on clover or grass that actually—as in feed—that reduces gas production in animal, and how far we are actually along in that research. Two questions.

Collins Just one.

Lee Just one: A and B.

Richardson Right, I don't want to get in trouble. I'll start talking. In the answer to your second question, you're absolutely right. Most of the science we do in plant science right now has both an animal nutrition and an environmental component. So we are looking at forages that will perform better under future projected climate conditions.

We're also looking at forages that produce less greenhouse gas when ingested into the animal, or require less fertiliser, which in itself releases greenhouse gas. And we're also looking at plants which actually have deeper-rooted systems, which helps drought resistance, but also helps retain nutrients in the soil to prevent leaching.

Forages to produce less greenhouse gas will only be used if there are production benefits, such technology to our 24,000 SMEs of minimal appeal. Deeper rooting systems for plants has nothing to do with retention of nutrients??

The clover root weevil we talked a little bit about—but I think perhaps the new insight there I can bring is that when this call came out about this time last—2 years ago that we had an outbreak in Southland-Otago because of that particularly advantageous conditions, what AgResearch was able to rely on was the fact that our people had introduced the root weevil but, most importantly, the parasite—had tracked its movement across the country. So in that particular fortnight, which was critical, our teams were able to model where in New Zealand they would be able to find clover root weevil that were still alive but had recently been parasitised by the wasp, because that's what we needed to move, right?

So on the surface it looked like you just rolled out into a paddock with the relatively unsophisticated hoover, suck up wasps and spray them on Southland-Otago and generate $50 million worth of benefit, but, actually, it relied on the decade of tracking to know where to go, how to multiply them, and how to distribute them on farms. So there's, actually, quite a lot of deep science, then, behind the relatively unsophisticated-looking, you know, suck them up and spray them in Southland that created probably $50 million's worth of benefit down there.

Lee Oh, fantastic. So that is, we benefit—sorry, the dollar value—$50 million—

Richardson Of just that intervention.

Lee Right. Fantastic. Fabulous.

Yang Thank you very much for coming to the committee. Thank you very much for what you have done and what you have achieved. Congratulations to those scientists who are published on *Nature*. As a former academic, I understand how challenging it is to have reached such top journals. Thank you very much.

Robinson Thank you, sir. I'm not quite sure—there was a lot of questions there. We weren't writing them down. Does someone summarise those questions?

Cunliffe Yes, our staff will be communicating with you.

Yang Yes, that's right, the clerk with write to you, and, basically, order additional questions or information we request.

[**FTR end time: 11:29:27]**

Conclusion of evidence.