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## Presidential Address 2008

### Where are we going and who's driving?

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I come to the 2008 Presidential Address in the unusual, but not unique, situation of preparing to leave New Zealand and move to a new research leadership position overseas. I hope that this will give me an even better platform from which to make some constructive and objective comments about the direction of our research and livestock industries.

I will take the approach recommended by a previous research director of “telling you what I am going to tell you”, “telling you” and then “telling you what I just told you”.

Some of my remarks will be controversial and those who have got to know me over recent years will realise that this is outside my ‘comfort zone’ as a natural conciliator. So, firstly to tell you what I am going to tell you. I am arguing for a better balance in our research objectives and structures. You might think that sounds like Dewhurst taking the safe middle ground again – but in fact in some important aspects of our research strategies and structures, the ‘popular’ views sit at the extremes. I wish to highlight the middle ground in three aspects: the contribution of animal science to a balanced diet for people, that is, a balance of system and component research, and a balance between research that is driven by producer needs and hypothesis-driven research.

#### **A balanced diet**

There is a certain machismo about animal production, particularly red meat production, as one of my colleagues has on a poster “Eat meat! The west wasn’t won on salad”. It’s a bit like the dinner at my first ever overseas scientific conference in the German Democratic Republic (East Germany). Masses of meat served with even more meat and meat garnishes and a token dollop of red cabbage, garnished with meat.

Animal production faces many challenges, expressed with varying degrees of hostility. These range from mild concerns about human health effects through to animal extremism. We must meet these concerns with a balanced view and research to address real issues. The consumer is right to be concerned about the effects of animal products on their health and the environmental footprint of our



livestock industries. They are right to ask questions about inefficiency in converting grain to meat and, particularly, poor animal welfare conditions.

At the same time, the current concerns about food supply and escalating prices over recent months reinforce the fundamental nature of agriculture in sustaining the world’s population. The television news one recent evening showed the paradox clearly. The main article was about

food supply and prices, but it was closely followed by an article about childhood obesity. There are grounds for optimism in that the rate of increase of childhood obesity has decreased, but the levels are still increasing.

Our response to the vegetarian, environmental, animal rights or other concerns must reflect the fact that it is a privilege to use animals for food. We must set our animal production in the context of producing a healthy balanced diet for people. Modest amounts of high-quality meat and dairy products alongside plenty of fruit and vegetables. We should strive even harder to improve efficiency, quality, welfare and the environmental footprint of our industries. Of course, New Zealand stands up well to much of this analysis. Although, we sometimes give the impression of just producing ‘animal protein’ or ‘milk solids’, we know that we are highly skilled at converting plant material that is not human food into high-quality meat and dairy products used around the world.

#### **System and component research**

The ability to research and understand animal production at the system level is an important strength for New Zealand animal production science. I am concerned however that this can become a dogma that does not move forward and, worse, can end up as an argument not to do further component research. However, this is a strength that New Zealand can build on in several ways. Firstly, by using the system approach alongside component research to explore which components will best reward further research. Secondly, by opening up new research opportunities at the interfaces of traditional disciplines. Thirdly, by engaging with the

new approaches being used to integrate information in molecular and cell biology. This is systems biology linking genes through to cell function. The last approach links to a point that I will pick up on later in my address. We need to develop researchers who can think outside the box, develop hypotheses, challenge assumptions and get excited by new opportunities in science.

Our traditional view of a good systems person has included one who has a grasp of a wide range of disciplines covering plant, animal, soil and overall farm management. We need to add to this the need for people that can integrate science across disciplines and link effects at the cellular level through to implications for the system. This is more than just making empirical linkages, it means understanding mechanisms.

### **Hypothesis-driven research**

Hypothesis-driven research has had a tricky ride in New Zealand with a massive and ongoing focus on delivering financial returns over short-time scales. This is not a new debate. I quote a few words from the 1945 Presidential Address of Dr J.F. Filmer, who coincidentally was an Australian who moved to New Zealand. “There still persists in some circles a form of intellectual snobbery which refuses to recognise as true research any investigation which has an economic purpose” ..... “The rate at which biological problems multiply, in the stimulating environment of the laboratory, is matched only by the most prolific members of the animal kingdom. If unchecked this mental fecundity must result in a plague of embryonic ideas, few of which have any chance of survival”. Despite poking such fun at basic and strategic research, he does admit that “It must not be thought, however, that the problems of animal industry can be solved by a few simple experiments designed on empirical lines”.

Filmer supported the view from the Hammond report that “after the commercial needs of industry have been considered and the problems defined, the scientific workers should be allowed to find the scientific principles involved in their solution”. This Englishman, albeit an Oxford man, agrees. The emphasis on financial returns is good, but has resulted in a science system that often lacks the vitality of chasing scientific dreams.

This brings me on to comment about the prevailing research structures. In his 2007 Presidential Address, Chris Burke spoke about the nurturing role of the New Zealand Society of Animal Production (Burke, 2008). One of our key objectives is to encourage young people into animal production science and provide a supporting environment for their early science interactions. Or as Filmer said “The first and paramount consideration must always be an adequate supply of

competent research workers”. It is good that this address is linked to an important session in which we show-case the work of our young members and encourage them in their early steps in scientific presentations. I was nurtured through our sister Society, the British Society of Animal Science. Earlier this year, when collecting their Sir John Hammond Memorial Prize, I reflected on the fact that I had received their Young Member’s Award 21 years previously. These things are important, as is the genuine interest and support that we established scientists give to young scientists. Take care to encourage young scientists in your own and other organisations.

The ability to chase dreams in curiosity-driven research is important to young people. Current structures do not match the energy of the young mind keen to expand. Again, to quote Filmer “A research worker must have the insatiable curiosity of all young things. The persistence of this beyond adolescence is a special form of arrested development, but it is so essential, that when it fades the research worker should be promoted to an administrative position”.

I am concerned that young people have few opportunities to work with, or even see, good science facilities or buzzing scientific communities within our university animal science areas. It is good to have strong multi-disciplinary research groups within commercially-focussed institutes working on big industry questions. However, when institutes started to emerge from universities over the early and middle part of the last century, it was never intended that they would become a process in themselves, nor operate at the expense of having a strong research-teaching nexus on university campuses. This thinking has been reflected in a number of major research institutes worldwide reintegrating into universities; notably the Danish Institute of Agricultural Sciences and, in the United Kingdom, Roslin Institute and the Institute of Grassland and Environmental Research. For good measure, I will also express my view that there are too many universities in New Zealand. But that is another story.

### **Concluding remarks**

There is a lot that is good about the commercial focus of our research structures and the strong hands played by animal industries in all aspects of research. As somebody who followed the ravages of the ‘Thatcherite’ cuts to ‘near market’ research in the United Kingdom in the 1980s, which decimated world-leading institutes, it has a certain appeal. However, in my judgement, the approach has been applied too zealously to the detriment of independent scientific thought. There are success stories in our universities. As an example in my own

area, some good undergraduates are supported by Dairy Industry scholarships. The key issue is how can universities and institutes work together to revitalise our university agricultural science, refresh facilities and capability, and allow people at this early stage to see how a career in animal science can allow them to follow their dreams?

I come from a line of three generations of dairy farmers so am ingrained with the interests of animal production. As a side note, I should say that my great grandfather milked cows in Queensland, Australia for a period around 1910-11. I wish the livestock industries in Australia and New Zealand well, but even more I wish you a renaissance in young people in their supporting research. My key message is that we need to work out how to encourage others like us, the bright young things with an interest in animal production, to get excited by what they can do in science.

### **Note added in April 2009**

As I came to re-read my address, in preparation for publication in the Proceedings, I was struck by the congruence with recent proposals for the merger of AgResearch and Lincoln University. I should stress that I had no inside information on that proposal. My words could either be seen as prophetic or, as my old history teacher said “a remarkable grasp of the obvious”!

### **References**

- Burke, C.R. 2008: Presidential Address 2007. The Society's role in being empathetic to the animal production industry. *Proceedings of the New Zealand Society of Animal Production* **68**: 1-3.
- Filmer, J.F. 1945: Presidential Address. Animal research in New Zealand. *Proceedings of the New Zealand Society of Animal Production* **5**: 1-9.