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What will it take to feed the world and what is the role of New Zealand animal production in this?

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A recent United Nation's report stated that the world's growing population will require twice as much food in 40 years time. What opportunities and challenges does this present for agricultural product producing countries? How will researchers meet the challenge of feeding a world population that is estimated to grow to 9 billion people by 2050? This is not an area that I would claim to be an expert in, and have collected information from different sources to construct my discussion. While you may not agree with aspects or perhaps any of the views express within this address, it is an area that I believe is pertinent to the focus of animal production covered by this audience.

Historically, New Zealand has claimed that its competitive advantage was to produce agricultural exports at a lower cost than other nations. So much of our primary produce is seen as a commodity that is sold cheap and in bulk. This has resulted in producers becoming almost too good at what they do, with increasing volumes depressing prices.

However, current opinion is that New Zealand's $26 billion agriculture sector will soon feel the squeeze from lower-cost foreign competition. The expectation is that the global food shortage will result in the opening up of historically marginal agricultural regions such as South America, areas within the former Soviet Union, Mongolia and Western China as well as large tracks of Africa, to large-scale intensive farming. These regions benefit from lower-cost land and labour and often less complex regulatory regimes. In addition, they are closer to key markets, enabling them to deliver food to customers at a significantly lower cost than a competing farmer or grower in New Zealand can. I am sure none of this is new information for our membership. What adds a different perspective is that a report released by KPMG International Cooperative in April 2010 suggests that New Zealand companies have a short buffer, which may be as little as five years, before these low-cost regions are producing bulk commodity products in significant volumes and undercutting New Zealand's pricing in our traditional markets. This is seen as a big incentive for the sector to focus on producing more premium-type products, such as Icebreaker New Zealand Ltd., the Merino wool clothing manufacturer which is frequently touted as a success story. Icebreaker is seen almost more as a philosophy rather than a company with its branding that entails the customer to see exactly where their product has come from, right down to the actual sheep! For New Zealand to move to a niche product producer however, a strategy for moving both our agricultural and horticultural sectors away from growth driven by volume towards value-added products is needed. It is imperative that lowest cost should not be New Zealand's driver. We need to adjust our thinking in that, although we export a large proportion of what we produce, we are a small player in a global sense. We are in fact a niche product producer. It is thus important that we need to maximise the value of the product we sell rather than focus on being the lowest cost producer. Being the lowest cost producer will not necessarily give us the quality of product we need.

We need to use what makes our products unique as a selling point. For example, Irish milk is being marketed with a premium because it contains a higher concentration of conjugated linoleic acid (CLA), a healthy fat associated with grass fed cows. We have been publishing results on higher CLA levels in both milk and meat from our animals in our Proceedings and elsewhere for the last five years but the industry has not seen fit to develop and market the concept. In addition, in the wake of the melamine disaster, our products are seen by many international consumers as safe, being produced in a quality controlled environment, to a high standard.

However, is this strategy broad enough or perhaps just one step in a process to adapt to a changing global environment? Consider a report recently published in Nature, commenting on the first global conference on agricultural research for development. The three ideas discussed as the most promising route to feeding nine billion people were:

firstly, fight loss and waste. As much as 30 to 35% of the world's food output is lost. How will this impact current thinking of both consumers and producers? Education is needed around where food comes from. Current perceptions, especially by many consumers in the western world, need to be changed. A simple example but I think a telling one is if a carrot is crooked and has soil on it, that is the way nature made it and its not defective! Long may the growth of farmers markets continue.

Secondly, diet needs to be considered. The production of animal products requires considerably more energy and land than plant products. It is estimated that we need to ensure food availability of 3,000 kcal/day/person, of which only 500 kcal is from animal products. This is far from a typical western diet but would result in far greater food availability. Alternatively, the increase in the global population suggests that even if consumption of animal products does decrease per head, there will be an increase in demand. How can we position our industry to take advantage of these changes to expand our current markets and develop new markets and products?

The third point to be discussed was food prices. There are many issues around the volatility of prices to be considered. Research into economic tools to stabilise prices at the international level and to ensure adequate food reserves is needed. A major challenge will be to determine economic solutions and manage the regulation of markets of agricultural foodstuffs to avoid the fluctuating price senario where prices can go so high that people do not have access to food but also to be able to guarantee minimum prices if farming is to remain viable.

A final point, pertinent to New Zealand to be considered is a strong message from developing countries around the strength of family farms. Making these more productive is seen to be key to alleviating poverty and meeting both local and global food demand. With the international focus having long been on large-scale farming, this is a new message: count on and help develop small farms. Areas for research on smallholdings are very different from those of large scale farming. The research questions are not the same.

The changing international environment as described by both the short term challenge of competition from other low cost producers and the potential changes in diets and food prices, have the potential to markedly impact both New Zealand exports in terms of quality and volumes, and our markets. This needs to be taken into account when developing a long term, well thought-out industry wide strategy. Rather than developing a product and finding a market for it, we need to define the market and produce the product, utilising our unique selling points. For example, the dairy industry has focussed on finding solutions for customers, working to identify the needs of customers and develop products that meet those needs. This is creating demand for these new products. While this is innovation through processing, this could be complimented with on-farm research that could be used to produce niche products. Unfortunately, the industry seems to be risk adverse in developing these markets. Consider the CLA example. For every milk example I can think of, I am sure there are parallel examples from the meat and wool sectors. To develop new markets, it would appear there needs to be large investment with increased commercial risks taken.

From a research viewpoint we have some challenges to face ourselves. It would be imperative that ideas are developed in an environment that is conducive to innovation and thinking outside the square. Currently the funding environment within New Zealand is not conducive to providing the infrastructure to do this. Measures must be taken to modify the research environment and stimulate innovation. We have too many small science providers that suffer from a lack of critical mass, competing for the same funds, with limited success at collaboration. Our research focus has an emphasis on short-term product development while our strength has previously been based on understanding the system and evaluating implemented changes and innovation. With the many recent restructures we have lost many of the people who have the skills to do this. We are fighting to maintain fundamental science and to attract the bright young things the industry needs in many areas. To this end we also need to improve our technology transfer. This will be critical to ensure our results are available to those we are supposed to be helping. We need to ensure that these challenges are addressed in a positive manner to provide us with a base on which we can build.

In conclusion, our global population will increase dramatically over the next 40 years. This will change demand for animal products. Our industry needs to ensure its own sustainability by producing value-added products based on our unique selling points. To do so, we need a research environment that enables innovation and allows us to leave our organisation affiliations at the door to achieve our goal.