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Animal source foods and sustainable global food security

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Abstract



The development and adoption of new innovation in livestock production (including products, practices and genetics) can help farmers produce more food, more sustainably. Conservation organisations, among others, are calling for the need to freeze the environmental footprint of agriculture, particularly animal agriculture. In so doing, food can also be kept more affordable. This is an achievable goal. For example, with existing innovations, such as improved animal welfare, nutrition and genetics, we can raise the average annual increase in global milk yield from 13.5 litres/yr/cow to 24 litres. Realising this potential involves a combination of commercial opportunity, corporate responsibility and responsiveness to post-farm gate consumer dynamics. It also requires predictable science-based policy to support innovation across diverse production systems, and to facilitate global food trade.

Distinguished guests, ladies and gentlemen, you might notice that the name on the slide is not Jessica Ramsden. Sameer Bhariok sends his apologies for today, his father was taken ill and hospitalised over the weekend so he was unable to travel to Australia but asked me to present this on his behalf.

Elanco Animal Health is a veterinary medicines company. It was founded by Lily in 1954. We have around 7000 employees in 70 countries. Elanco got involved in the food security conversation because we understand the problem and we feel that as a food company we have a responsibility to be part of the solution.

As you well know by 2050 our population will grow to nine billion and with that will come a 60 per cent increase in the demand for the nutritional benefits of meat, milk and eggs (Fig. 1). According to the U.N., food security is not only about having enough food but enough food for a nutritious diet. Eggs, meat and milk provide not only proteins containing a wide range of amino acids but also bio-available micronutrients. According to the World Health Organisation (Fig. 2), one out of three people in developing countries suffers from vitamin and mineral deficiencies that cause stunting, blindness, anaemia and

reduced immunity, especially among children; these include minerals iron, zinc and calcium, and vitamins A, D and B₁₂.

Figure 1. Food security realities of today.




Figure 2.
Reasons

for including animal-sourced foods.

Key nutrients in animal source foods

- Animal source foods add key nutrients when supplementing a rice diet:
 - Protein, vitamin B12, zinc, iron, calcium, Vitamin D


Chicken



Milk



Eggs



Source: USDA SR-21.

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So how do meat, milk and eggs help to meet those micronutrient needs? Well one serve of chicken provides protein plus vitamin A, vitamin B₁₂, zinc and iron. Each serving of milk can supply substantial amounts of protein, vitamin A, vitamin B₁₂, zinc and calcium (Fig. 3). And egg yolks are one of the few naturally occurring significant dietary sources of vitamin D. Eggs also contain the carotenoids lutein and zeaxanthin, which may help to prevent cataracts and age-related macular degeneration.

Figure 3. Key nutrients in animal-sourced foods.



But while the need for animal sourced foods is increasing we'll have to meet this demand while using fewer resources. According to the World Wildlife Fund it currently takes the earth one and half years to generate the resources that we use in just one year (Fig. 4). And as Dr Fowler said last night and Dr Verburg reiterated this morning, global agriculture will double its requirement of water by 2050 but we're already using 70 per cent of the world's fresh water resources.

So how do we produce more with less? Well for milk the challenge is simple, and despite the current short-term volatility in global milk

Figure 4. Another reality – overusing our resources.



markets demand is outpacing supply. While dairy productivity has doubled in the past 50 years we actually have 14 per cent less milk per person than we did in 1960. But with innovative solutions we can fill the gap between production and demand and freeze the environmental footprint of milk production.

Today on average around the world cows produce about 7.5 litres of milk per day and in high-producing countries they produce around 26.5 litres or more. All it takes to meet this growing demand is for every cow to increase her production by 140 ml a day – that's half a cup (Fig. 5). On our current path with the same productivity and cow herd growth rates we would need to have almost 40 million more dairy cows by 2050. Not only is that significantly more feed and water, it still won't fill the gap between production and demand (Fig. 6).

Applying today's technology

Applying today's technology to milk would have a huge impact on environmental sustainability by requiring 66 million less cows by 2050,

saving significant amounts of feed, farmland and water (Fig. 7). And the types of innovation that can make a difference can be very simple

Figure 5. Trying to fill the milk gap.

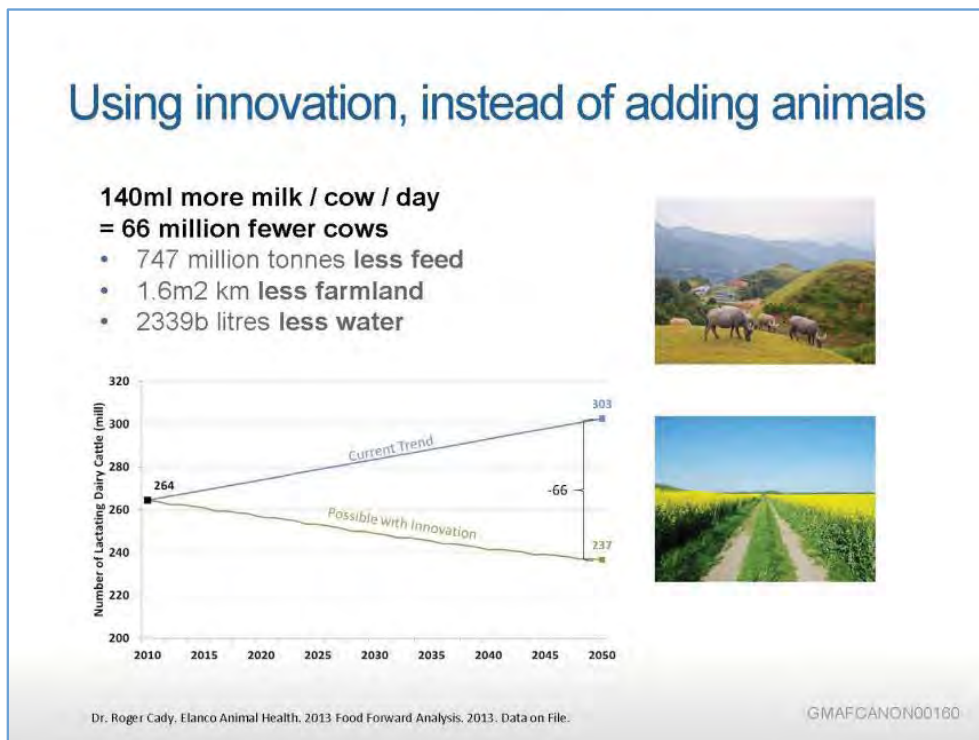


Figure 6. Environmental implications of filling the milk gap.



improvements in animal care, such as fresh water, comfortable housing, better feeding nutrition, and disease prevention and control. And this is one way that animal agriculture can reduce the use of feed for animals – which Dr Fowler mentioned last night as one of the six components of increasing the food supply.

Figure 7. Using innovation instead of extra animals.



The private sector has an important role to play in helping to build sustainable global food security but it does require new thinking – about the innovation that we develop and about how we engage employees, communities and consumers in conversations about food security, agriculture, innovation and trade. Innovation can help to produce food while using less environmental resources, such as through increased feed efficiency and livestock production. It can help to enhance the wellbeing of animals in food production systems, such as through improvement in animal welfare science and handling. And it can help to improve the safety of food through processing, handling and distribution, such as through developments in food packaging and transport (Fig. 8).

Figure 8. Improvements through innovation.



Companies also have a responsibility to engage with and contribute directly to addressing the immediate food security needs of local communities, to engage their employees in the ‘why?’ of what they do at work and to commit time and resources to global and long-term sustainable development initiatives. For example Elanco works with Heifer International, a non-profit organisation that provides livestock tools and training to thousands of families in more than 50 countries (Fig. 9). Animals gifted to a family provide an income and the offspring from those animals pass to the next family together with the tools and the training to help support animal care and handling, and so on and so on to each successive family.

Together with other partners Elanco is working with Heifer on a five-year project to build sustainable dairy markets in East Africa. The East African Dairy Development Project will improve the livelihoods of 136,000 smallholder farmers and their families in Kenya, Uganda and Tanzania. I was talking about this with Dr Persley earlier, and she knows this project intimately, so she could discuss it far better than myself.

Another role of the private sector is to advocate for solutions to global food security. For example, Elanco published *The Enough Report* in 2014. This report doesn't only talk about the 'what' of global food security, it also talks about the 'so what' and the 'now what?' (Fig. 10). So it talks about solutions not just the problem, and it presents information in a way that's easy to digest and to share while trying to

Figure 9. Support for *Heifer International*.



Figure 10. A diversity of ways forward.



engage broader audiences in the conversation about solutions to global food security. Whether we're from the public or private sector or from an NGO or academic community, everyone has an important role to play in finding and implementing solutions to global food security. I sometimes hear that Australia can't solve global food security or Australia won't be the food bowl of Asia, but Australia shouldn't define its capacity to contribute to addressing global food security by the volume of agricultural produce that it can put on a ship. Australia might not become the food bowl of Asia but it can be an engine of collaborative effort to ensure the establishment of policy settings that help to make global food security a reality.

This conference is an excellent opportunity for all of us to better understand and to recommit to our respective roles in this endeavour. I'd particularly like to commend the Crawford Fund Scholar Program for young agricultural scientists and to congratulate the Elanco scholar recipient Tanapan Sukee, a student of production animal health at Melbourne University.

By fostering understanding, connections and collaborations in new ways the scholar program takes this opportunity to find new and enduring solution to global food security to a whole new level.

I am finishing with a video about Heifer International which really goes to the heart of the opportunity we have to solve global food security – and that is to do it together.

Jessica Ramsden joined Elanco in November 2012 as Corporate and Government Affairs Manager ANZ, responsible for working together with business, industry and Government to support the role of technology in agriculture. Prior to joining Elanco, Jessica was Corporate Affairs Manager at Heinz Australia for 5 years where she was responsible for all external and internal communications, issues and crisis management, and Corporate Social Responsibility programs. Prior to Heinz, Jessica spent 10 years with the Australian Trade Commission in various policy and business development roles in Canberra, Melbourne and overseas. Jessica has Masters degrees in Asian Studies (ANU) and Gastronomy (University of Adelaide).